Good evidence that LCN is aggressive. Gradually increasing burst of LCN's by adult bird on ground before flying up to attack me by aerial chasing.

Lots of T from H, presumably FB, by juvenile birds.

Here attacks by the one territorial pair of adults, resenting my intrusion, have continued, off & on, for two hours.

The LCN's are given so often and so loudly by these adults that it suggests that they can extend into regions of rather strong motivation. LCN's often given when I would expect a Long Call.

This attacking pair must be on their pairing territory, I think, but they are well along in the pairing process. No FB or regurgitation today (possibly yesterday, however), but still there isn't much violent hostility between the birds. Often their MC is confined to a vague, C.L. (difficult to tell if ritualized or not), V, with or without equally vague MF movements, or a series of LCN's.

Each LCN on ground is accompanied by definite forward movement of head & neck. Presumably int. mov. of O, but also often looks like Fint. mov. This last appearance is almost certainly misleading.

"Kow" syllables in complete L.C. number about 5–8, followed by "Kiow"s with T's.

Have heard one trisyllabic A.C.: "Kek Kek Kek". Otherwise all mono- or bi-syllabic.

To sum up: This species would appear to be a typical hooded gull of the atricilla–pipixcan, and presumably primitive, type. In addition, the Tuking would suggest a relationship with furcatus.

stolidus

(21)

October 27, 1905,
Santa Cruz,
Academy Bay.

Some SIGN? Bird on ledge of cliff. Looks like potential nest-site. Gnes note whenever another Noddy flies nearby. Each note a Rattle or Sucking (will call Sucking in my notes, but really a rattle), quite mechanical in sound. "r-r-r-r-r-r." Each note accompanied by slight but definite upward and forward stretching of the neck. Head remains more or less horizontal. Bill widely opened during note. Relaxation complete between notes.

Posture during Sucking note.

Have heard same note given by flying birds, (from usual unnatural postures)

November 1,
1955
Guayaquil

On my return from Galapagos, found Guayas River still full of *atricaudus*, but also many *pipixcan*, both juv. & adult.

November 5,
1955
Chancay, Peru

Adult *modestus*, non-nuptial plumage, does T when juv. approaches & tries to steal food. T from H.

Huge flocks of juv. gulls around. Mostly *pipixcan* I think. No or very few adults. May be a few *atricilla* in crowd. Juvs. are giving typical juv. LCN's in air

November 7,
1955
La Puntilla,
Nr. Pisco,
Peru

*belcheri*

*Larus belcheri*. Looks very much like Herring Gull. Perhaps a little smaller, infinitesimally smaller headed. Short winged, not at all like Ring-bill. Bill & legs bright orange yellow. Dark eye (looks small). Small black spot on upper mandible tip, & large red spot on almost all distal half of lower mandible, gives most peculiar effect.

M C of mutual V & HF. One V rather intermediate, on "aux" side, other V very "aux". "Aux" V head-shape like Mebs's photographs of Herring, very dissimilar of Ring-bill

Bill pointed very strongly upward in "aus" V. Eye semi-closed, in at least one case. Carpal joints rumble, but not held out very far

Voice of this species quite "large Larus" in type. Perhaps particularly reminiscent of fuliginosus. Rather nasal

Quite prone to give LEN's in flight. Usual postures

Have seen one, rather slight, Swoop & Soar. About as extreme as the most extreme Ring-bill patterns. Swoop accompanied by series of loud, rather long, LEN's. No real L.C. or PCC

Have seen several Trumpeting Calls, but not close enough or frequently enough to be able to describe in detail. Still, some aspects are obvious. HD is about vertical, head pointed straight down, not too stretched. 3rd phase O is rather like Herring Gull. Angle → → like this, quite low, straight. Neck not very stretched. No sign of T or II

All in all, this species seems surprisingly like the Herring Gull and unlike the Ring-bill

communal area

V+HF — HD — O before attack — V after attack V before attack — V after attack Ch. Ch before attack — V after attack V. V.

MC MC V-HF lg ♀ V-HF-HD-O-V lg ♀

Correction. Carpal joints held way out during HD

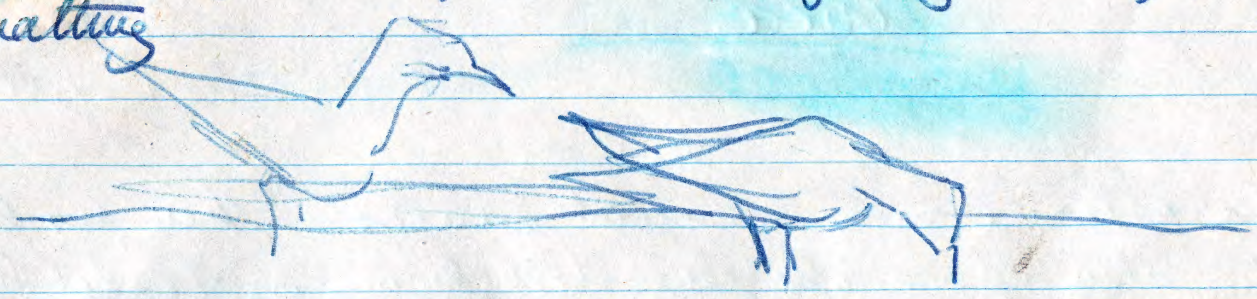
Held out very little during the succeeding O

All the Trumpeting Call performances I have seen so far have had only two phases: HD → O.

Lots of notes during O — — — — — — —

belcheri, Nov. 7, 1955, III

Choking looked just like one type of Herring Gull, ch. No squatting



Alc. often uttered in air. Notes like "large Larus"; but only 2 or 3 syllables, like Hydrocoloeus. I.E. whole performance is rather like modestus

White bar at rear of wing conspicuous when wing folded. But very little white tipping of scapulars. Only rear scapulars. Sometimes not visible at all

LCN's on ground accompanied by int. mons. of HD

General Notes about birds around La Punilla.

A small number of belcheri. Rather active. Presumably breeding nearby.

Lots of pipixcan. Almost all juv., yet almost all imm. Very inactive.

A lot of modestus. Almost all juv. or imm. Very inactive.

A few atricilla. Adult, non-mpt. Very inactive

November 8, 1955
Obrgo, (near the Ballesta Is.)

## inca.

Larosterna inca. Silent panics. Then, as birds presumably calm down a little, still flying in tight flock, a hoarse, "rusty", "twittering sound. "Ka ha ha ha ...." Form of Glik?

Also a longer note, same hoarse quality. Might be transcribed as "Waah". LCN?

Ballestas Islands
On ground. Vast variety of postures & movements.

1. Chattering. A high phase & a bow. Frequently repeated. Seems to be largely directed toward companions.

high phase varies from something like a stretch to something like an upright

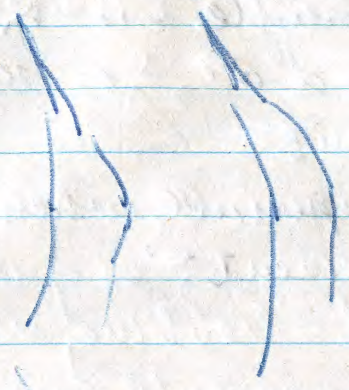
Bow phase is very rapid, intermittent, much shorter than high phase. Bird at bottom of bow looks rather like Gaetke's letting.

Accompanied by the rapid, chattering call, mentioned above, given in air.
I think that call continues during Bow, but it is so rapid difficult to tell.

Lima, Nov. 8, 1955 II.

Lowned might better be transcribed as "Keh keh keh ....", but so rapid almost a rattle. Very reminiscent of BKK, (as sound noted in flying birds) Bill opened (a little) and closed very rapidly.

2. Stretch. Silent Bill closed. On landing usually Looks much like high phase of chattering. Not quite vertical



3. LCN. In more or less U posture. "Wah" note Bill opened quite widely and then closed. Often directed toward me.

4. "F". Seen once Looks quite like F With a soft whining note. Perhaps just a variant

5. Clgg V. Quite clear. Short necked

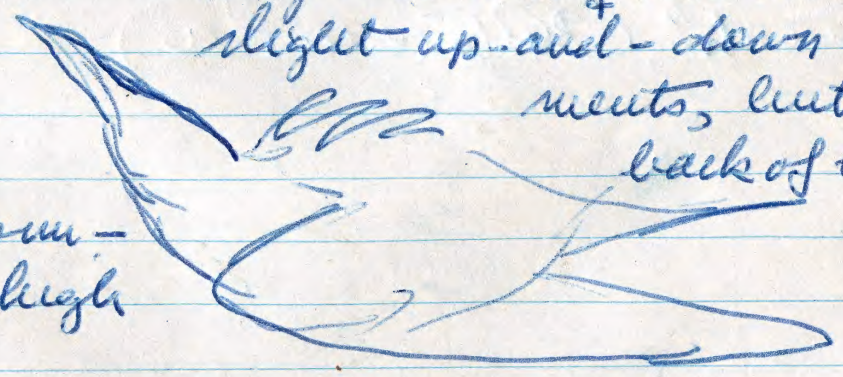
6. Also something much like Ch posture or sustained bow-

Chincha Sud.

7. Something of an aerial stretch with Glide

8. Peculiar H or F posture

Might even be ♀ FB. Accompanied by slight up-and-down head movements, but primarily back of head or whole head. No sign of T.



Response of mate was chattering performance, both high & bow-

Wednesday
November 9, 1955
Chincha Sur.

# inca.

More about *Lanosterna inca*.

The peculiar hunch with ruffle (H+R) is a form of FB apparently. Saw a ♀ do it to a ♂, for several seconds, eventually inducing ♂ to mount.

The head movement, especially when there is only one isolated low-intensity movement, is quite reminiscent of short distance HB. (i.e. head-bobbing in the B.h.g.)

This copulation was apparently preceded, by several minutes, by the presentation of a fish. Unfortunately, I did not see the intervening patterns.

The usual M.C. appears to be mutual Chattering (Cht), with both (P) and low phases (—). This may be followed by some sort of V+HF; but I am not sure about that.

Cht. is perhaps less aggressive than LCN. It is my impression that LCN is particularly liable to precede attack. A flying bird charging me is apt to give LCN. Aerial attack call is perhaps a version of the LCN. Perhaps particularly loud, harsh or rattling, with sort of a "tik" in it at the climax of the charge — Tah-h

Ordinary LCN might better be transcribed as "aaanh", (Boston accent a)

Thursday
Nov. 10, 1955,
Chincha Sur.

Watching *inca*'s on communal area of rocks, showing some lekking

Inca, Nov. 10, 1955, I.

Some Cht from "F" "F" looks rather like low intensity F. forms to occur when bird opens bill Cht to another bird some distance (2-3 ft) away and slightly below

Many Silent Pants

Two birds just standing on rocks, bold full longitudinally in bill. Fly off in circular flights from time to time, usually returning to much the same spot. Not getting any response except occasional hostility from neighbors.

Copulation attempt. Again immediately preceded by ♀ in H with R. The slight head movements definitely accompanied by opening & closing of bill. Couldn't hear sound. Then ♂, who has been standing in V (long neck, horizontal bill, not very "agg"), with ears, Cyrthestellinga and OCB's, mounts. Stands ♀ behaves like ♀ gull, cawing his breast, etc. Then ♂ attacked by neighbors, general pandemonium. ♀ stands in "agg" V.

Seen several apparently silent Strotches (St.). By one bird when another lands closely. By landing bird after landing near others. Low intensity "greeting" ? Much of this St. looks like ∅ of Cht performance without sound.

Some comments on LCN & related patterns. Often accompanied by incomplete or complete raising of wings. This is obviously just an int. mov. of flying, and the birds do a lot of it when "disturbed." Birds also stand in LCN posture, with or without wing-lifting, but apparently silent. This appears to be a sort of Gape pattern, (G), and may well be a low intensity version of the LCN pattern.

Explanatory note. I put up blind yesterday afternoon in a spot where there had been many terns the day before. But yesterday there were no birds! Then, this morning 6:00 a.m., there were lots of birds on rocks 50-200 yds away from blind. Now, 6:35, they are making occasional flights over blind,

Mica, Nov. 10, 1955, II

ocas landing, with much LCN, etc. at place where they were day before yesterday. Flyoff again immediately in full Panic. Is this process of colony-occupation? Or just reaction to presence of blind?

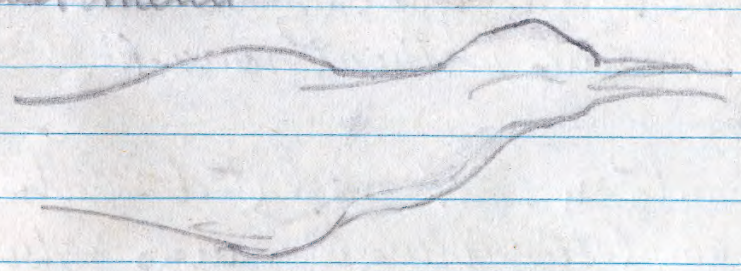
All gone now — 6:42.

This LCN note may have a form of "rattle" or "teeling" undertone, but slight, certainly much less conspicuous than in stolidus.

The birds not back yet 8:00 a.m., but I don't think that the blind is wholly to blame. At least, I see, in the far distance, groups of birds making flights from the rocks to another potential breeding displacement, an old deserted shack, with lattice work openings at the top, where they only remain for a second before returning to the rocks.

Leaving blind to go watch communal area on rocks

What often looks like forward also often looks like forward stretch



sort of bussmers

communal area — (8:10) V+G. St. LCN. St+G. Agg. V. LCN-LCN-LCN. F+Clit. Goethestelling (Gost) — F-Clit. F-Clit —

M.C. — M.C. ♂ Agg. V ♀ more extreme Agg. V - HF - Agg. V - HF - Agg. V.

Cop attempt. Didn't see preliminaries. Like all the attempts so far seen, the ♂ mounted, then just sat for a long while. Finally copulated twice. Post-cop display mutual — aux. V. ♀ then flew away.

nica, Nov. 10, 1955, III.

comunal. — — — — Agg. V F+Cht F+Cht F+Cht F+Cht F+Cht
Agg V — F+Cht — — — V — — — F+Cht — F+Cht F+Cht
F+Cht — Aux. V — — — Gost — ft — LCN — LCN Gost — V — Gost

G is never wide, apparently. (Tongue & much of inside of mouth are yellow; but this does not appear to be emphasized in G

M.C. M.C. ♂ Agg. V + HF — Gost — V — preening. ♀ Agg. V — Gost — V — Gost — V — preening

M.C. M.C. ♂ Agg. V + HF, ♀ Agg V. + HF + what looks like CO+G) CN, but can't hear sound ♀ invisible most of time.

This HF is less a vigorous, sharp, flag, than a slightly slower "showing the back or the side of the head." In any case, it does appear to "remove" the bill

When relaxed, head is perfectly rounded of

front part of mustache often almost straight

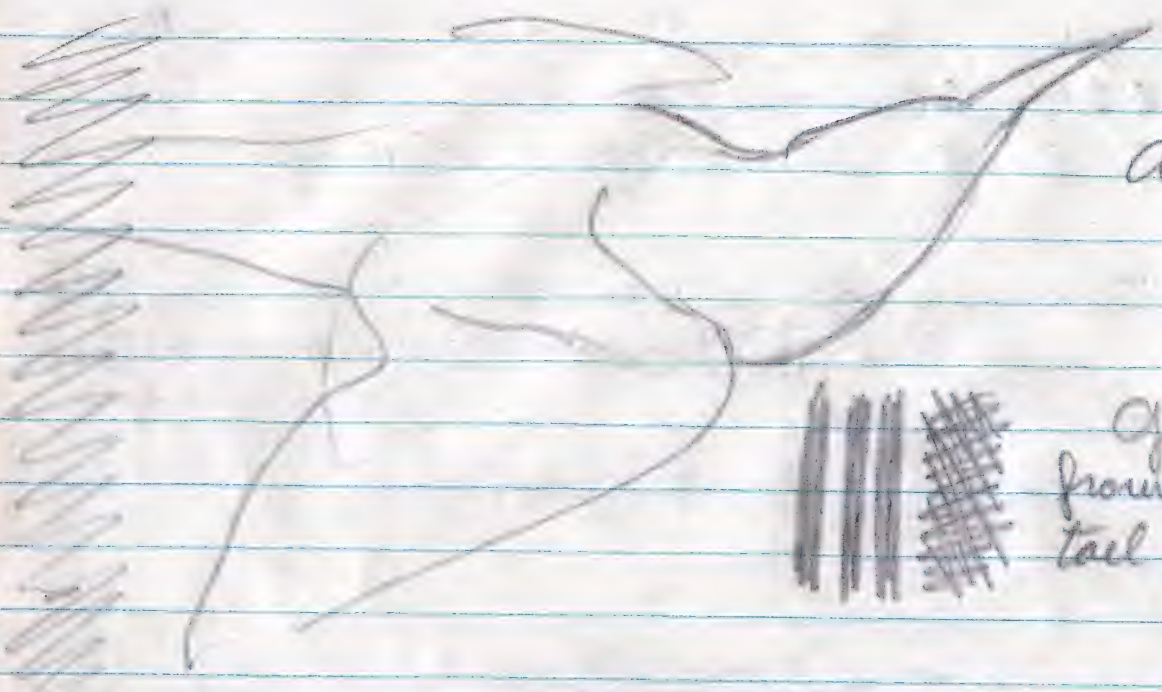
Comme ci

Have now seen aerial ft. with glides; with unusually rapid, almost vibrating, wing beats of small amplitude; and with normal wing-beats (during Silent Prime).

Aux. V in this species is essentially same as pre-flying posture

Gost is perhaps the same thing as — . I think that there is tendency for call to cease during — , but this probably varies

Mica, Nov. 10, 1955, IV.



Aerial ft. posture

Given once by bird escaping from another that had singed its tail in mid-air

Aerial ft. given by bird after being chased by another, when the original pursuer flew ahead over head. Then bill opened, still in ft, an LCN noise uttered!! I think the birds separated after this. The bird who did ft in air landed, gave long ft, eventually continuation of aerial ft. it had resumed after LCN. Then relaxed

* communal. Gost - Gost - Gost - Gost (this appears to be low-intensity form of I - ● Cht performance. Silent. Bird comes up into relaxed posture between gosts, but bill is pointed slightly upward during this relaxed posture) Gost - ft - Gost - ft - ft & G.

(9:15)

I - ● a Cht performance appears to be the usual display toward flying birds by a bird on the ground. at least, quite common. Sometimes Cht with F instead, I think

Bird circles in "vibrator" flight (call it Moth flight) after aerial flight about 4 times, then begins to fly normally, with flack. No trace of ft during this Moth flight

Went back to blind. Visited a couple of times, but birds gone most of the time. Back to communal areas, 10:05 a.m.

* communal ● - I - ● - I - ● LCN - LCN I - ● - I, Gost - ft
LCN LCN H - I I - Gost I - ● - I - Gost O & G.

Wica, Nov. 10, 1955, V.

[illegible] LCN [illegible] gait. gait gait. LCN Aux V. O+G. gait [illegible] gait-gait [illegible] F+Cht. F+Cht. [illegible] ft-ft+G gait-gait LCN-LCN

Two birds flying in circles, in Mott flight. Perhaps disturbed by me. Fan off occasionally by one or both, (I think strongest in following bird) Change to mewing LCN's when over me. Back to silent Mott flight for a few more circles, then separate, land

Body-head proportions in normal flight. Some variation in final twist of mustache. Wind may blow it upward

The usual posture accompanying aerial Cht + LCN is certainly not a ft. Thru or less normal flying LCN posture. Perhaps a tendency for neck to be stretched upward + head downward during LCN.

Course Ca.

Commence at Ending 10:55

gait-gait-gait-G-gait-V+G V+HF [illegible] gait-ft [illegible] gait-ft+G-gait gait-gait [illegible] ft+G-gait G-gait LCN-LCN Aux. V+G. ft-gait-ft.

Have seen again that Cht. performance is usual "mod. int." M.C between birds that appear to be mates. (i.e. birds who stay wide by side for long periods of time, without departing, and then turn to face one another and give repeated Cht. performances during

MCA, Nov. 10, 1955, VI.

disputes with 3rd birds) Can begin with either ⚥ or ♂, tends to decrease into gort & ft. Then perhaps leaf V. Then preening

There appears to be a strong tendency for mates to relate Cht performance toward one another. Often reminiscent of up-ward & downward Ch of Kittiwake

Leaving 10:55.

1:55 p.m. Now have blind in better place. Near a colony of nests (with eggs) and also near a communal area. Birds coming back in distance, but rather shy.

I think that I am looking at an outlying part of the colony now

Bird vibrates all over during Cht. Much like Ch of Franklin's Gull

♀ FB from ♂. Not most enticing ♀ posture, wings not drooped, just carpal joints out. ♂ stands in agg. V, mounts, slips off, stands in agg. V.

▲ ▲ toward flying birds. F+Cht. H+R+Cht. F+Cht. F+Cht. F+Cht. ft+R — gort — ft.

Another cop. attempt. Again unsuccessful. ♀ FB in H with R. ♂ in agg. V ♂ mounts. Slips off. Stands in agg. V — gort — agg. V

ft. after attack. Apparently territorial defense.

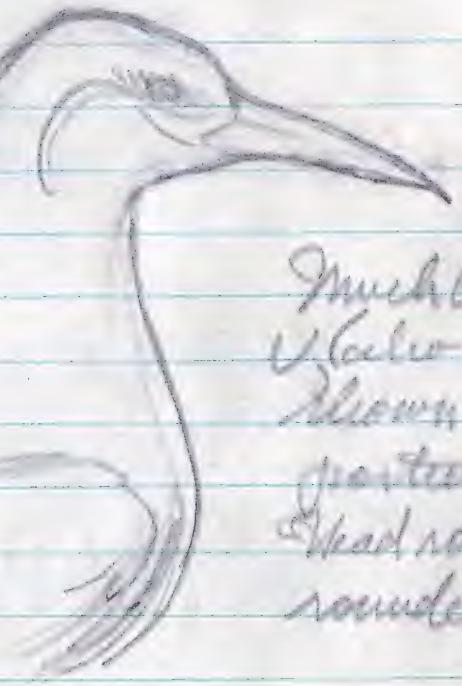
MCA, Nov. 10, 1955, VII.

Extreme agg V.

bulge in neck is just about where the light grey stops.

Extreme aux. V almost ff.

Pre-flight



Much less aggressive V (also occasionally shown as pre-flight posture)
Head sometimes more rounded.

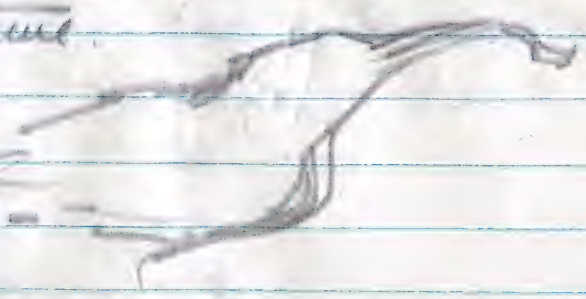
Fight on ground. Then one bird escapes. Second flies after in Moth Flight Circles. Lands. Makes little circular Moth Flight. Lands. Disappears.

"Forward" with chest sometimes almost exactly like the F of the B.H.G.

Semi-F posture

Inca, Nov. 10, 1955, VIII

One bird lands on rocks in distance. Fish in mouth, dangling. Stands in semi-H, long time.



Then another bird lands, very near, does ! — — ! — gart - V + HF - -
Gart - V - pr - V - pr - V slow
The bird with fish makes some response to ! — performance, as if alone, my low-intensity ! — stuff. Then just sits, facing the other bird (too far away to hear sounds. Bird with fish may have been calling continuously for all I know.) Other bird flies away. Bird with fish just sits. Eventually flies away, too, in silent unintentional flight.

Silent G in flight. Very pronounced. By bird that had been doing it on ground.

Just heard a very loud "honking" version of cht. Don't know in what connection. Might just possibly have been a Pequena.

The usual LCN does sound like a cross of nutting. Considerable variation. E.g. "attack" LCN

a ↑ aaah
sure "tile"

Also higher-pitched, "purer", more plaintive version.

! — cht performance often followed by semi-V. Have once seen cht from definite agg. V. This must be relatively rare, however.

V's definitely appear to be "low-intensity" for, in fact, do all the silent patterns.

LCN on ground accompanied by definite, rapid, half-way raising of wings. Reported during intra-specific dispute. Bird not frightened by me.

MCA, Nov. 10, 1955, IX

Definite cht-toward flying bird first in H with R, then F. Also noticed that first few notes of cht may be slower than later on, and that these slow notes are much more like LCN notes in quality. (Adding these incidents to count on p. VI)

Just saw transfer of fish from one bird to another. Preceded by cht performance that I didn't catch. Followed by silent St, by the donor.

Bird with fish stands in semi-H, fish dangling. Then another bird lands. Birds facing one another. Newcomer (looks larger than bird with fish) immediately begins cht, begins with — — ! — — — ! — V (with much DCB). Bird with fish does something similar, — — ! — ft (Couldn't hear it call, but tail vibrated as during cht. Then bird with fish flies away on circular flight. Other bird flies off. Other bird lands. Bird with fish lands. Again mutual display, exactly like before. Other bird does — — ! — — — ! — V + HF (slight) + DCB. Bird with fish does — — ! — ft. Again bird with fish goes on circular flight. Back. Other bird does — — ! — V + HF + DCB. Bird with fish does — ! — V — eats fish as does HF. Bird that had fish flies off. Doesn't return for several minutes.


Low intensity St

St + G — V + G after attack during territorial defense

mca, Nov. 10, 1955, X

Territorial bird in H & R & HB toward another bird a few feet away in H with fish. Then just attacks second! Then agg. V + HF + slight G — agg. V after attack!!

None of the H's with R I have seen today have been with wall drooping wings. Perhaps latter is only unmed. pre-cop. The birds I have seen have just had their carpi held out as in usual threat.

Ring of bare flesh around eyes, of ♀ at least, is bright yellow

St & G after attack during territorial defense. St. very extreme

Another copulation attempt. Nearly, saw well ♀ begins, by going into H & R & HB. Bill opened & closed slightly during this performance, usually opening on downbeat ♂ in agg. V, perhaps once or twice OCB, usually bill quite closed, certainly quite silent. ♀ circles ♂, repeatedly, in same H & R & HB. ♂ stands more or less stationary, just turning to face ♀. ♀ appears to be getting frantic, finally sidles backward beside ♂, backs into him, then starts to turn head from side to side, over shoulder, as if covering ♂'s breast as during copulation. ♂ finally mounts. ♀ remains in H. Still turning head from side to side. Note about ♀'s posture. Her carpi were out, but wings not drooped. Wings separated a little, tail raised between them, when ♂ mounted. This time (throughout copulation) ♂ just stands. Finally copulates twice. ♀ continues head turning before & between. ♂ slides off. ♂ does agg. V + HF — agg. V — relax & begin to preen. ♀ resumes H + R + HB for a second, then relaxes & preens 3:45.

♂'s belly feathers very ruffled after mounting. Also breast feathers to some extent.

Name again been matching persistent H + R + HB by ♀. Circling, round & round, & chasing ♂. Her posture is really remark-

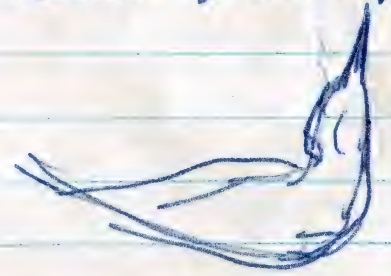
all like F of B & G. Managed to hear sound accompanying HB; an extreme soft "wah", repeated with each down beat. (When neighbor intruded, the ♀ turned to face it, continued H+R+HB but sound became intermediate between normal HB sound & LCN. The high plaintive LCN I mentioned earlier.) Noticed that ♀'s abdomen feathers also ruffled during H+R+HB. Wings not drooped.

Usual ♂ response to ♀ was exg. V. & retreat. Occasional semi-HF movements

♂ responded to intrusion by F & Cht. Once went down into H & trace of R. Then resumed F & Cht

Noticed that when ♂ was running away from ♀, when he was in exg. V., his scapulars were slightly raised, as a tract, but no sign of R. 4:05

Usual ft., when not a "silent" or LCN", is rather short-necked. Like a V posture superimposed on an F



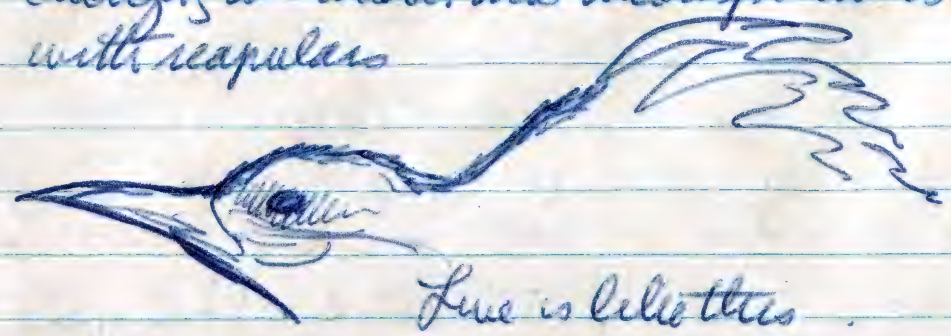
This whole Cht performance is remarkably like both the Glik of Franklin's Gull & the Ch. of the Kittiwake. Call itself is probably strictly homologous with Glik of Franklin's.

Birds may often do ft, and nothing else, when landing amidst their fellows in a communal area. Then begin to preen immediately.

Long continued & sustained G in LCN type O posture. Wings raised each time as bill opens. Looks, in fact, just like extreme LCN, but certainly silent or call at least as weak as HB call. This pattern can't be too low-intensity, although presumably weaker than LCN ritual.

Inca, Nov. 10, 1955, XII

Have been watching ♀ H+R again. Top of head & back are slightly ruffled, but this is slight enough, and the feathers are short enough, to render this inconspicuous. Real conspicuous R begins with scapulars. Chin smooth.

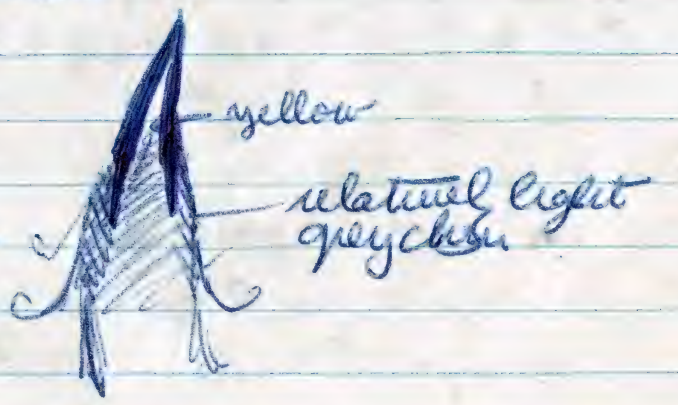


Line is like this.

Underside of wings silvery. Lighter color is moderately conspicuous when wings are raised during LCN's.

V+G lay unim. after retreat, after being attacked.

Must mention that ft. & some ♂ reveal yellow between the 2 sides of the lower mandible.




This is sometimes very conspicuous. Probably an important release.

V—Goes after attacks during territorial defense.

♂ does quick, nervous, but complete, preening, apparently as a response to ♀ soliciting.

V+G—after attacks during territorial defense.

Bursts of LCN by neighbors & disputants. During vigorous territorial disputes. Also other hostile patterns. Haven't been able to see circumstances of these LCN's at all clearly.

I have again seen sexual birds, just "wanting" on rocks, with fish dangling from beaks; most peculiar. Can't be pure digestive process, as they often regurge again. Appear frozen.

inca, Nov. 10, 1955, XIII

!! High intensity LCN posture
Wing-raising is almost inevitable

FO.

Peculiar incident. Buel, presumably ♂, lands beside another, presumably ♀. "♂" with fish. Just stands for a moment, in usual fish carrying-posture (which we will call "Fish-Oblique", FO). "♀" starts chit from F. Anomalous slight flare of R. "♂" goes down into F also, less extreme, and probably silent. Then "♀" flies to another "♂", presumably her mate. Thus "♀" and the other "♂" then go through a mutual chit with ● & ! performance, followed by mutual C. Thus this "♀" and the second "♂" behave like mates. The fish-carrying "♂" meanwhile flies to another bird, presumably a second ♀, and sits in front of her with fish. She goes down into H+R, and begins HB. "♂" just sits, finally hands over fish. Then, as second "♀" begins to swallow fish, a fish bird attempts to steal it, and general pandemonium ensues. General fight. All fly off. 5:40

Does this incident suggest that pair-formation consists of ♂'s flying from place to place, resting every now & then on ground, and trying to get ♀'s on ground to accept fish ??? Suggestive of something, anyhow.

Leaving 5:45

Unca

Nov. 11, 1955
South Chicka Ja

Bl'd same place as yesterday afternoon. Enter at 7:17 a.m. Day clear. Still cool here in shadow of cliffs. Birds still a little shy.

Note about "real" ft. Have seen it again & again by birds landing near, but not too near others. Head more vertical than most of the stretches which appear to be "silent" calls. Perhaps body more horizontal and neck a trifle shorter also.

← variant

!! "Real" ft. Not caric-atured at all.

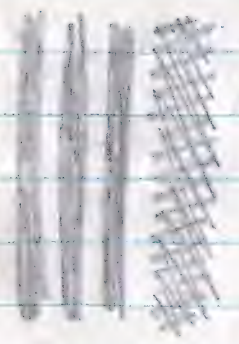
* display, provoked by terr. defense, and re-directed on mate — ft - ✓ - ✓ - ✓ - ✓ - ✓ - ✓ - ✓ - ✓ - ft - gost - ✓ - gost - ft - ✓ - ✓ - ✓ - ✓ - ft - gost - ft - gost - ft - ✓ - ✓ - ✓ - ✓ - ✓ - gost - ✓ - gost - ✓ - gost. Agg. V + HF ft - gost - ✓ - ✓ - ✓ - ✓ - ft - gost - ft - gost - ✓ - ✓ - ✓ - ✓ - ft - gost - ft - gost - ft - gost - ✓ - gost - ft

* terr. defense (or at least hostility on territory) — ft. Agg. V before attack. Aux. V - V before attack - ft. after attack (not extreme, almost aux. V) LCN - LCN - LCN - gost - Agg. V - gost - ft - gost - ft - gost - ✓ - ✓ - ✓ before attack - V after attack. ft - gost - ft - gost - V. ft - F - ft. Aux. V during retreat V - gost - gost - gost - gost. Aux. V. before escape. Aux. V. F + G - D + G. gost - gost - gost - V - gost. ≈ ✓ ft between attacks. LCN. ft after attack - V + G. LCN - LCN - LCN. LCN. LCN. LCN

Inca, Nov. 11, 1955, II.

M.C. M.C. ♂ agg. V - gost - agg. V - gost - V - gost ♀ agg. V - gost - agg. V - gost - V - gost

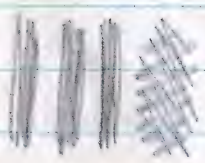
M.C. M.C. ♂ agg. V - [illegible] - [illegible] - [illegible] - [illegible] - [illegible] - gost - st - gost. ♀ st - gost - st - gost - [illegible] - [illegible] - [illegible] - gost - st - gost



Bird just flew by. In extreme st. At first a trace of moth flight, wing-beats very rapid, but of remarkably small amplitude (no more than 2" at most). They glides while continuing in extreme st. This st. definitely silent. Bird soon disappears from view around a rock.

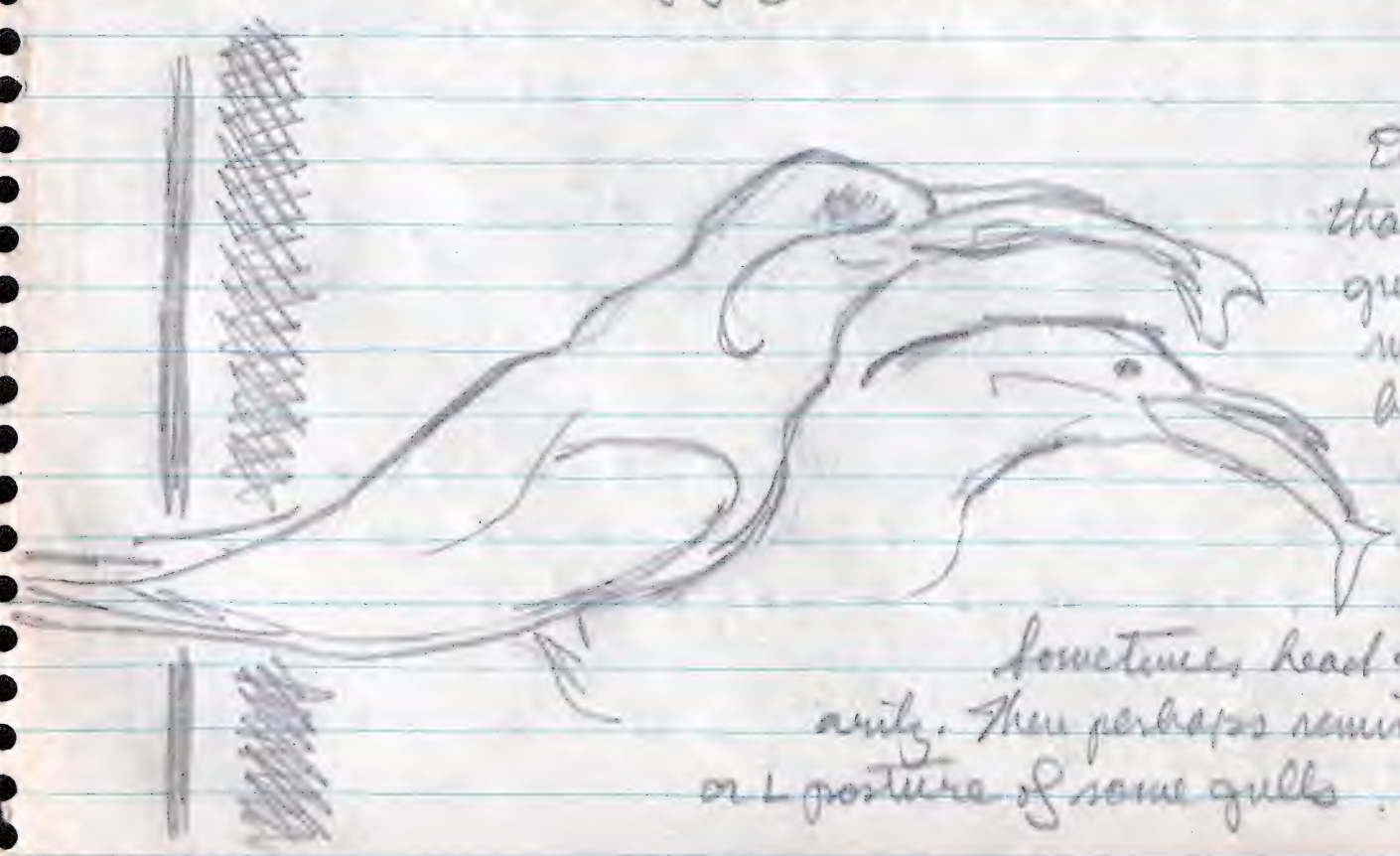
* realizn. on mate. Gost - gost gost - gost [illegible] - [illegible] - [illegible] - [illegible] - [illegible] - [illegible] - [illegible] - [illegible] - st - gost - st gost - st - [illegible] - [illegible] - [illegible] - [illegible] - gost - st - gost - st - gost [illegible] - [illegible] - [illegible] - [illegible] - st - gost - st

M.C. M.C. ♂ st agg. V - gost - V - gost - V ♀ V - gost - V - gost V. 8:00



Wing feathers also ruffled during H+R+HB. Quite conspicuous at times.

▲ Toward flying birds. F & Cht. Cht (alone, no posture) F & Cht.



Extreme FO. Notice that neck is sometimes quite swollen, which means that fish must be partly swallowed. Occas. regurg. movements.

Sometimes head a little lower momentarily. Then perhaps reminiscent of M posture or L posture of some gulls.

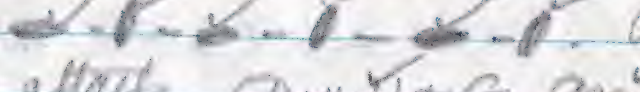
## vica, Nov. 11, 1955, III.

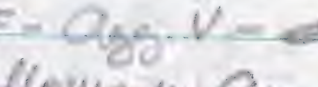
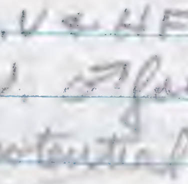
(43)

Interesting incident. Apparent ♂ (large), with fish in bill, approaches apparent ♀ (small). ♀ reacts by F & Cht. — Agg. V. — F & Cht – Agg. V. ♂ just stands in posture varying from semi-H to complete F. When in most extreme F, a trace of R. Finally flies away a few feet. ♀ then relaxes, doesn't follow him. ♂ stands in F for a while, finally swallows fish. Ocb ocb ocb stands. Then involved in some attack with another bird; can't follow it. Both fly off. ♀ remains, relaxed & preening.

This encounter looked much like an amorous ♂ making advances to an already mated ♀.

* terr. defense

F & Cht, Agg. V. St  Agg. V – Gost. Agg. V – Gost – Agg. V before attack. Anx. V & G. Agg. V.

Apparent nest-site selection "ceremony"!! ♂ & ♀ land. M.C. quite mutual Agg. V & HF – Agg. V –  – Gost – Agg. V. ♀ walks away in Agg. V. ♂ follows in Agg. V. ♀ goes from potential nest-site to potential nest-site, i.e. crevices and hollows under rocks. Each place, she looks down repeatedly (like a series of Gosts). ♂ joins her, does same thing. Birds orientated comme ça  Then ♀ scrapes briefly (without turning). Then ♀ walks to another site, in Agg. V., ♂ follows in Agg. V. Then whole performance repeated. Saw 3 sites visited in row, before birds disappeared around boulder. 8:40

* terr. defense

Gost before retreat. LCN – V – Anx. V before retreat. V. St after attack. O & G. O & G during retreat. St after retreat. O & G. V & G. St. Anx V before retreat. Anx. V before retreat. St.

* reder. on mate

St – Gost – St – Gost – St 

There is always a great burst of LCN's by flock returning from a Silent Panic. 8:50

uca, Nov. 11, 1955, IV.

* redir. on mate ending 9:35

Gbst - ft - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ft, ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - Gbst - ft - Gbst - ft, F + Cht - ⊘ - ⊘ - ⊘ - ft, F + Cht - Gbst - ft ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - ⊘ - F + Cht - ⊘ - ⊘

During three bouts of mutual displays, provoked by an intruder, and redirected upon mate, it is noticeable that mates tend to do the same things but are only synchronized part of the time. 9:05.

◎ M.C. ♂ does Agg V - HF - HF - Agg V - Gbst - V - Gbst - V
♀ does Agg V - HF - Gbst - V - Gbst - V.

Watching another copulation. Much as yesterday ♀ HB in H + R, with much head-turning. ♂ in Agg V - ⊘ - Agg V - ⊘ - Agg V. Again slow. Notice that ♀'s yellow-rimmed cloaca is constantly opening & closing during her solicitine. (This may be visible to the ♂ in some circumstances; as the whole rear end of her body is tilted & raised.) Again, she didn't droop her wings until ♂ mounted. ♂ copulated twice. Then slid off. No display by ♀. Agg V - HF - V by the ♂. 9:17

There is almost certainly no Copulation Call in this species

Almost certainly no Alarm Call.

Almost certainly no Landing Call

Watching next-site selection going on. Perhaps same pair as earlier, but in a different area. Behavior just as described above.

Have twice seen one of the birds in Silent Pames fly up in Flutt Flight & aerial ft. Unfortunately didn't see what provoked the pames.

Inca, Nov. 11, 1955, V.

Bud flies in aerial ft with Moth Flight - glide after breakup of aerial fight. This bird was aggressive during fight

* Com. before end 9:35 begin again 11:25

O+G. (ending temporarily 9:35) (begin again 11:25)
● St. O+G. Aux. V. Agg. V. Agg. V. after attack.

St. after supplanting attack by immature bird! Quite as extreme as most of those of adults. Also a gait later on!

* commun. area.

(9:35) St - gait - St - gait - St - gait - St - gait - St - gait - St - LCN - LCN - LCN. St. St. F. F - St - gait - St - gait - V. LCN before attack - LCN after attack. St. St. St - gait.

▲ St. St. St. LCN. LCN. St. St. St. St. St. St.

Fail after chase when gliding. (Remember this for drawing of aerial ft with glide.

* commun. area

LCN before attack - LCN after retreat. gait St V - gait - V. LCN F + O before attack - St. after attack. St. St. St. LCN. V. V. Aux. V. Aux. V. F + Ch. LCN - LCN - LCN - O+G. LCN - LCN - LCN - LCN before attack - LCN after attack.
St. after attack by immature. Agg. V. by immature

* Commun. area. Ending 10:45

St during retreat St. St. St. F + Ch - V - F + Ch. gait. St - gait. F + Ch - gait - St. gait - St. St - Aux. V before attack. St. LCN - LCN - LCN - LCN before attack - LCN after attack. St - gait - St. St - gait - St. LCN. St. St - gait

◎ M.C.

M.C. in communal area. ♂ V - HF - V - HF - V ♀ V - HF - V - HF - V. Then both begin to preen.

Notice an interesting performance (included in count above) Bud lands in communal area. Does St - Aux - V - attacks a bird a few yards away. Latter flies up immediately. Attacker chases briefly. First time I've heard burst of Ch in usual aerial

Cbt posture, then goes into definite aerial F, with trace of Moth flight.

The Cbt & F performance, as shown briefly toward flying bird, may be even more grating than other Cbt's. At least it appears to be so in the case of one bird near the blind, 10:30

The aggressiveness of this species is somewhat peculiar. When it does fight, it fights hard & long, but it is my definite impression that attacks & fights are relatively rare. (as compared with such species as the B.G.G., Franklin's, & the Ring-bill)

Have noticed one thing about the LCN's in this communal area. They seem to be very efficient as threat. Almost always being about retreat by opponent

LCN can vary downward to almost complete mandibul. Uty. This helps to explain some of the G performances

MC MC in communal area ♂ does agg U + HF - gape - agg U + G - agg - U - F & Cbt - F - agg U. ♀ does U - F - F - U.

inca, Nov. 11, 1955, VII

* redir. on mate

11:25 [illegible] - [illegible] - [illegible] - [illegible] - [illegible] - St Goit - St - Goit - St - Goit - St - Goit - St

Some, at least, of the mutual [illegible] - [illegible] performances by mates are apparently not provoked by intrusions of third birds. Just seem to start off in vacuo.

Peculiar incident. Primarily connected with pairing. One bird ("♂") hands fish to another ("♀") "♂" in semi-F. Also "♀". Posses some Clit in these semi-F's. Then "♀" runs around with fish, half-swallowed, protruding longitudinally from bill as usual. In FO position. Occasionally repeats "♂", or the repeats her. Then "♂" does Clit performances, mostly from F and [illegible], little [illegible]. "♀" then sometimes does same thing, more or less F usually, mate, can't tell whether sound or not. (fish carrying bird always seems much hampered by it. Pattern sluggish, unable to display properly.) Then "♀" makes repeated (at least 5) circular flights. Quite unmotivated. Very brief. Comes back to 3 different sites, in more central area, but separated by many yards and territories of other birds. Sometimes lands & nobody pays any attention. "♀" just sits, in more or less FO. Sometimes threatened (agg. V) by a nearby bird. Then "♀" retreats. Quite often there is some display mutual with a nearby bird. "♀" in FO, occasionally F + Clit. Occas. [illegible] or Goit. Y form of these fights, and potential nest sites, may conceivably be accompanied by threat of escaping. No bird displaying with "♀", which may or may not be the original "♂" each time does more normal displaying. Essentially an alternation of Agg V & HF and Clit patterns, mostly [illegible] and F, occasional Goits, perhaps an I or two. Thing got confused after this, as often happened, in noisy, silent flames throughout the colony. Best the "♀" is back, with fish, at least twice before I lose her again 12:25.

No, back again & again. To the same three sites. Sometimes a few others. Certainly approached neighbor birds. Comes a cop with time gap, which may be significant). Little

Erica, Nov 11, 1955, XIII

circular flights in between. Heard, starts in FO when landed. Most of the times, it land beside one particular bird. Probably original "♂" Dispersed as before "♂" —, |, & F+Clt. "♀" occasional clt in F & —. ♂ "occasionally in agg. V. Much moving about, not one because of circular flights & games, but also because "♀" much thin. Tend by neighbors. Swalls, on last return from a circular flight, "♀" swallowed fish. Then she and "♂" did much parading around in agg. V, V; V+HF, etc. "♀" goes to a nest-site once, & mopes buff. & leaves.

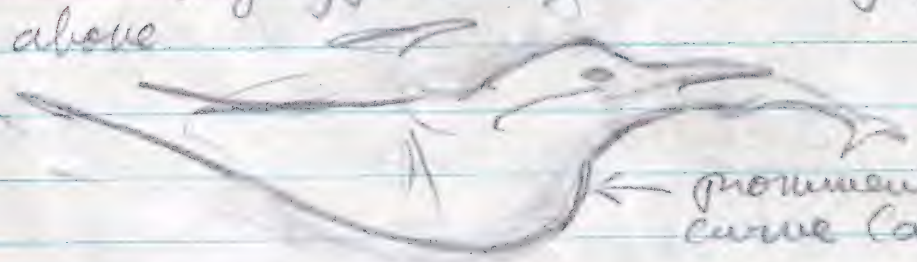
I have no idea, really, which sex was which in this length & dull imbroglio. 12:50

Leaving 12:55

Back 3:12 p.m. Birds come back fairly quickly.

M.C. Both birds do V+HF.

Flying posture of bird carrying fish in incident described above



← prominent curve (almost as in ft.)

Moth flight by both birds, after one attacks other on the ground. No ft.

Extreme Moth Flight. Bird circles with body almost as vertical as head & bill after some sort of dispute on ground

Inca, Nov. 11, 1955, IX

* Stor. defense (3:35) F+Cht. Gost. St. Aut. V. V V - St. LCN. LCN - O+G. O+G before attack. (attached bird escapes, attacker chases in Moth flight with St) F+Cht - F+Cht. F+Cht. St. Agf V. St. Gost. St during retreat St. Agf V. St. Gost - St. 3:55

ending 3.55

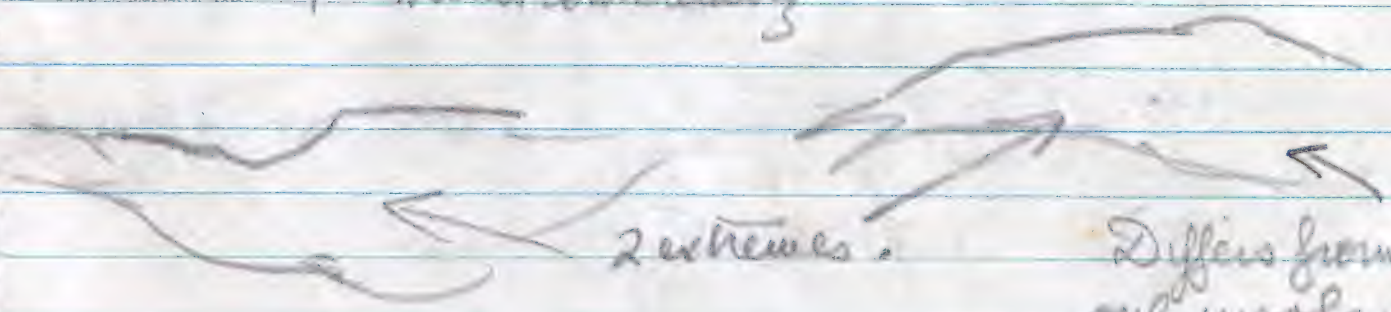
Case of feet dangling in one Moth flight with St

* commun. area !! (4:00) Remarkably un-hostile here now. St. Gost. St - Gost - V. St. F+Cht. F+Cht. F+Cht. F+Cht. F+Cht. H+R !! St. LCN - LCN. LCN. LCN. Gost - O+G - Gost - F+G. St - Gost

Notice that, in the case of preening herals, the earrings don't stand out very much. Does this mean that they are erected in display? Earrings are actually 2-part.


Now I'm not really sure there are two kinds of C. The "silent calls" are usually quite O.

"F" varies considerably




Differs from O, really only insofar as bill is not really pointed to ground

O with G is usually characterized by bill open only slightly. One of the things that make it look like low-intensity LCN. Sometimes, however, bill is opening wide. Then, I think, the tongue is apt to be visible,

something which varies, or more probably, never occurs with real LCN.

uca, Nov 11, 1955, X

There are several other patterns which may be produced by hostile motivation, but which I am not counting. Among these are DCB, head-shaking, and preening.

Speaking of preening, incidentally, although I have seen plenty of "nervous" preening, I have seen nothing that looks "ceremonial". The preening following M C's is usually relaxed.

Wings during Moth Flight with ft, especially when bird is slightly tilted (as I think it often is — slightly) are usually or always apparently "held above the bird" slightly. I.E. they must form a slight dihedral. I think that this is true even at the bottom of the downbeat 4:32.

These birds certainly have far more Silent Pauses than any other Carid species I have ever studied at a comparable stage of the breeding cycle, (i.e. may with eggs)

* territor-defense — LCN before attack — St + G between attacks — ft between attacks. (This is just one incident I witnessed. Took much less than a minute).

Apparent low-intensity, low-posture — LCN by immature before attacking.

* comm-area — St-gost. LCN. LCN. gost-V. St. St. St-gost. LCN. St. V+G/before attack — V after attack. gost. gost. St. St. St. St. gost. V+G. gost. St. gost St. St-St-gost St. ft after escape — gost. gost — LCN-LCN-LCN-LCN-LCN-LCN-LCN-LCN. LCN-LCN-LCN-LCN

Yes! The ear-rings are certainly erected during some display postures at least the V's. Probably all the ground threat postures.

The miniature birds are certainly more aggressive in the communal areas than the adults (and, I think, to adults) naturally

Lica, Nov 11, 1955, XI.

more simply attacks, without display

Repeat

to perfecto
Emphasize angles of breast

Most of the hostile displays can probably be schematized as follows:

1. Agg V — V — Aux V  HF related
2. LCN, with O+G and V+G as low-intensity forms
3. Cht patterns. ● + ⬬ + F. ⬬ + F intergrade.

The alternation of Gost + ft. is probably the low intensity form of this pattern

Agg. V, V+G, O+G, LCN, and F + Cht are obviously threat. The intimidating effect of the other patterns is less conspicuous. Does seem to exist, however; at least in the case of ⬬ and ●

When the hostility is at its lowest in the communal area, almost all you see are ft. and Gost. And these are infrequent. But when hostility increases, you not only get other patterns, you also get more of them. This means that my counts of communal area hostility are biased as a guide to low intensity hostility. They will tend to be "skewed" to the higher intensity end of the scale.

One slight point might be emphasized. Low intensity ft may be oblique, but it is short necked. The low intensity O of O+G or LCN tends to be like a long-necked V, at least moderately long-necked

uica, Nov. 11, 1955, XII

* Cornice area — St - gost - St - gost - St St - gost - St. St. St. St LCN - O+G.

As birds are landing after a silent Panic, the call birds on the ground make toward flying birds is LCN. Very noticeable.

* Common area — LCN - O+G - U - U+G St LCN St St. St. St - gost.

End 6:05

Some variants of LCN note by flying birds might be transcribed as "Kee-a-ar"

Real, extreme, short-vertical, bill pointed, strongly upward, F is the introduction to H+R.

Shape of tail, whether spread or closed, during Moth-flight with St is apparently dependent upon aerodynamics. Either one can occur.

Leaving 6:05

uica

Saturday, Nov 12, 1955. Chincha Isn

7:40 a.m, have moved my blind to center of colony. Don't know how the birds will take it, but they come back quickly.

* Pulir. matt


△ Post-cop — Post-cop displayed, of St q doesn't do anything

WCA, Nov. 12, 1955, II

Extreme aux. V posture (followed by gost)

St. St. St. F+Cht.

turn, left defense

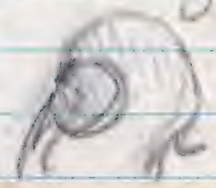
St.-gost. St. F+G-after attack-gost. V-gost. aux. V. St.-St.-gost. F+G-gost. St.-gost-gost-gost. St. V. St.-St.-gost-St. Agg. V. after attack. St. F+G after attack. St.-gost-St.-gost. gost. St.-gost. St. Agg. V after attack-gost. Agg. V-St. St. after retreat. St. after retreat-St. Agg. V-gost-St. St. St. after arrive-gost. St. F+G after attack-St. Agg. V+G after attack-gost-Agg. V. St. gost. St. St. St. after attack. St. after attack. St.-St. St.-gost-V. St. F+G after attack. St. after attack-gost. St. V-gost. V-gost. Agg. V before attack. Agg. V. V+G after attack. Agg. V after escape. St.-gost. St. St.-gost. St. St. Agg. V. St. St.+St.-Agg. V. St. after attack. Agg. V. before attack. St. St. St. St.-gost. St.-gost. St. after attack. St. St.-gost. O+G-V-gost. LCN-LCN

X discount last 2 LCN's

It is fairly obvious that the most extreme Agg. V's, perhaps the only extreme Agg. V's, are performed during M G's, including nest-relief.

Faint HB normal of ♀ might be transcribed as "oo-ah", very soft + plaintive.

Agg. V is sec. frequent accompanied by a sort of "Twisted neck, sort of an exhumbration of HF



mca, Nov. 12, 1955, III.

Very long, lean, look to birds flying in aerial st. with Moth flight.

Moth flight seems to be common in flights after flights on ground. 8:45

Bird standing in semi-V, semi-Gost posture, utters peculiar muffled sounds. Like muffled, long-drawn syllables of Cht. What are they?

MC ♂ st-gost-st ♀ ✓-✓-✓-st !!

* reder. note. st Agg. V-gost-st gost-st. ✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓. F+cht. F+cht. ✓-✓-✓-st. ✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-✓-

uca, Nov. 12, 1955, IV (55)

cr, more muffled, but still very loud, in ●. Transcription of rapid high intensity syllables as "ch-ch ch-ch ....." is about as good as any. Essentially un-transcribable.

Have seen presumed male scraping while presumed female looked on. 9:12

* redir. mate

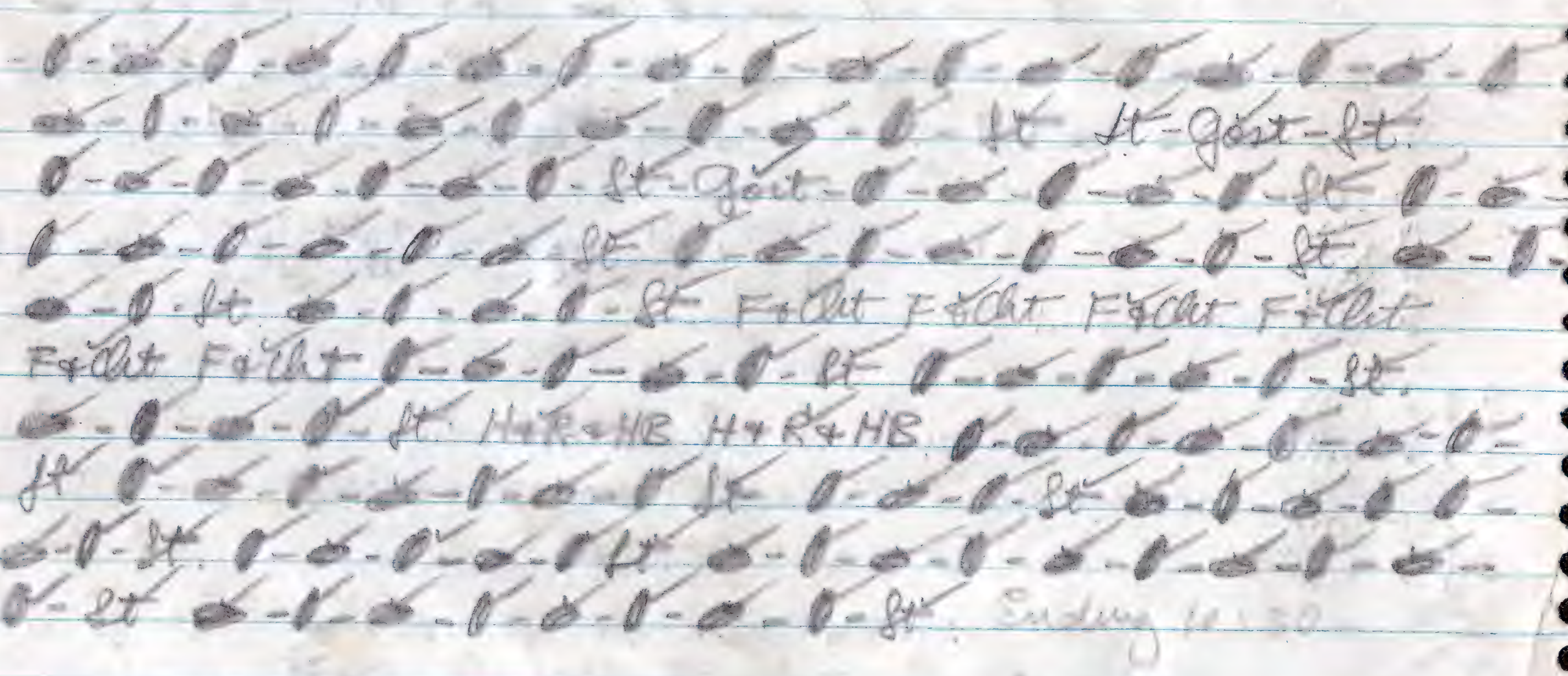
F+HB – F+HB – F+HB !! (Definite indication of the sexual element in some of these redirected performances).

Again notice LCN by birds after landing after Silent Pause. Not including them in counts, because I'm not sure of the stimulus provoking them.

Period of pause again 9:30.

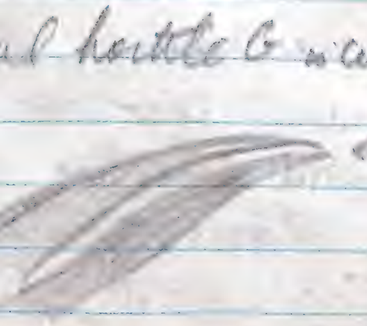
Mutual parading ♂ in Aux. V & St & HF. ♀ in Agg. V

* redir. mate
Ending 10:30



Ending 10:30

The usual hostile G is certainly very slight



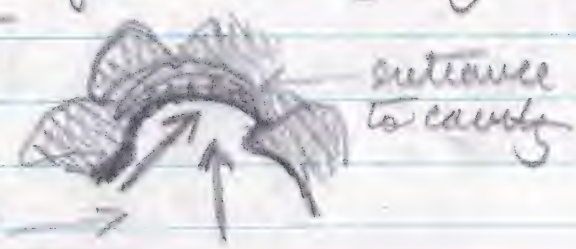
← almost appears closed at tip

mca, Nov. 12, 1955, V.

* terr. defens. LCN - O - LCN - O+G - LCN - O LCN - O+G - LCN - O+G - O LCN LCN LCN LCN LCN LCN LCN LCN LCN - LCN - LCN LCN LCN LCN LCN LCN O+G. gost LCN - LCN gost LCN - LCN - LCN Agg V before attack - Agg V after attack LCN LCN LCN LCN St+G after attack LCN LCN O+G LCN LCN St St+G after attack St

X discount the whole burst of LCN & O & O+G. Apparently directed toward lizard. !!!

One thing about reduction upon mate & Cht performance. Not only do the mates turn to face another, they usually turn to face, even enter the next cavity 9:55




* terr. defense Cuckling 10:30 F+G before attack - St after attack LCN - O+G LCN - O+G St after attack St St St gost St - - - - - - St St after escape St after attack before attack - O+G before attack Agg V after attack

Flutter flight with St by attacker after attack Again

Loudest cht is incredibly loud & metallic. Probably higher-pitched than other variants. Obviously high intensity

Have seen many attacks preceded by no display. This may explain some peculiar features of my figures

Again burst of LCN's from nearby birds when I can hear lizard running over my blind Again. 10:35

Again some pairing behavior. Much as before, but seen much nearer and in much greater detail.

♂ (quite large, almost sure of his sex), stands with feathers (as usual half-down throat, tail protruding longitudinally) Just stands, looking half-stupefied. Another bird approaches him. He attacks it flies off on little circular flight, apparently quite unmotivated then back. This alternation of little circular flights and periods on ground goes on for a long time

Each time when the ♂ comes back, he comes back to same small area, and spends much of the time sitting half-stupefied in FO. But also does other things. Sometimes brief dispute with neighbors ♂ does F + Cht then. Relatively rare, these disputes. A couple of times ♂ approached by another bird. ♂ just sits or does F + Cht. Then advances toward other bird (who has not displayed, just in mode semi-aux. V, anything), and other bird flies off. Sometimes ♂ chases in air, circle before returning. (The "other bird" was probably different at different times.) Sometimes ♂ suddenly flies up, shakes bird some distance away, and then goes off on circular flight & returns. (? Are numerous circular flights are probably all hostile, but they are certainly not usually intimidated.) Sometimes ♂ approaches another bird, particularly a neighboring or solicitous female ♂ in more or less F, possible trace of Cht. No response. Sometimes ♂ goes down into what is otherwise a potential nest-site. Did this at least 4 or 5 times. Sometimes brief Cht as enters. (Due to the topography of the ground he was always in F or semi-F when entering.) Sometimes stayed several minutes. Once definitely scraped. All this, to repeat, alternated with periods of just sitting, occasional walking about, + circular flights (and joining in numerous silent fences as well).

This certainly appears to be the invitation to pairing, but how the hell does the response occur?

Leaving 11:00 a.m.

Back 1:45 p.m. Have to get in blind by myself. Doesn't seem to bother the birds too much.

* terr. display

St. LCN. LCN St. St. Gost. Gost. St. St. Gost. St. St. V+G. St. St. F+Cht. St. Aux V - LCN. St after attack. O+G. Aux V + G (immediately followed by Meth. flight and St.) F+Cht. St. Aux V before attack - Agg V + G after attack. Gost. Agg. V - Aux V. Gost. V before attack. V before attack - Agg V after attack - St. St. Agg V before attack. St. St. Aux. V. Aux. V. O+G - Aux. V. Gost after attack. St. Agg V before attack - St after attack

Mca, Nov. 12, 1955 VII

toward legend or other pot. predator

LCN LCN. LCN. LCN. LCN. LCN. LCN.

♂ Agg. V ♀ H+R+HB

relev. mate

Se - Se - Se Se - get - Se - ♂ ♂ ♂ ♂ ♂ ♂ - ♂ ♂ - ♂ - ♂ ♂ - ♂
♂ - ♂ - ♂ - ♂ F+Clt F+Clt F+Clt F+Clt ♀ F+Clt F+Clt
H+R+HB. ♂ - ♂ - ♂ - ♂ - ♂ - ♂ - ♂ - ♂ - ♂ ♂ - ♂ - ♂ - ♂ - ♂ - ♂ - ♂

Fight much like B.h.g. Aerial pounce. Often much tumbling about with interlocking bills, or one bird holding on to wing or neck or tail of other. But all this is very aerial. No "stationary" tugs of war. Only on ground for more than a second when they are inextricably tangled and tumbling about in the dirt

There is a definite intermediate between Agg. V and Gort. Seems to be very aggressive. Have seen it several times before attack (classified as Agg. V, because it was nearer that than anything else

!!

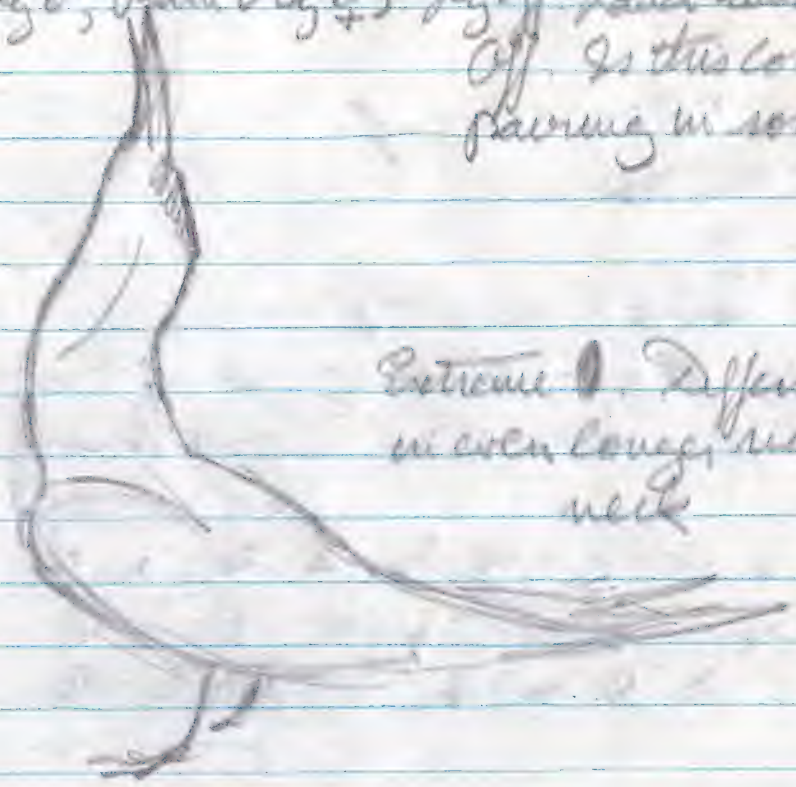
Note about Agg. V. This is the one posture I have noted so far in which caps are really dropped

Seen another bird standing at entrance of nest-site. With fish. In posture just stands for a long time. I look away and when I look back it is swallowing the fish.

MCa, Nov. 12, 1955, VIII

MC MC

Notice perched pair. Squid, in or near communal area, do mutual V+HF ceremony (agg, by ♂, plain V by ♀) fly off. Land another place. Report flg off. Is this connected with pairing in some way?



Extreme ●. Differs from St primarily in even longer neck, less angles on neck

Again peculiar fish business. 2 birds, possible pair "♀" with fish in bill FO-F "♂" in F. "♂" does F+ Clt "♀" may con-ceivably answer with a little Clt, still in F, but as usual diff-icult to tell. Then "♂" flies off, in circular flight, in Moth flight and St; ♀ follows, in circular flight, large unusual and possible trace of Moth. (This is quite like fish flight). Both birds back together. As before almost no display, but both showing tendency to F. "♂" flies off in St, possible trace of Moth flight. ♀ remains until general Silent Period 3:00.

Notice that bird has been sitting peacefully all afternoon in spot where bird with fish (A) was at time in morning. Hope this is A showing no interest in other birds.

More fishy business. Probably involving a pair already mated. One bird with fish, in F. Other bird HB in H+R (♀?). "♂" bounds over fish, or, latter, allows "♀" to neg it. ♀ out of H+R into semi-H, semi-FD. Then interruption as "♂" goes to threaten neighbor with ●. Then both birds of pair flg off. Fish carrying bird first.

What may possibly function as ALC is a sound like a bird's muffled version of Clt. No more than 3 syllables usually, cut

Uca, Nov 12, 1955, IX.

longest rapid "atuk-atuk". Some birds give this as they fly off at the beginning of a silent frame

Actually, one might as well transcribe full lit as "Tuk tuk tuk tuk tuk" as well as anything

Before I forget, I am not sure that, during this fish episode, the bird carrying fish in FO or F doesn't utter "oark" notes like HB ♀. Can't really tell who's doing what

*(Yes, before) Agg. V before attack - St after attack. Agg. V St - gost. Agg. V after attack - gost. St gost - Agg. V / Agg. V. St before attack - St after attack. St after attack. St - gost. Agg. V after attack.

Protuberance, during quiescence, bill feathers are somewhat ruffled and go in & out rhythmically, but yellow ring around address is not ruffled 3:40

*(Yes, before) F & Ct - - - - - F & R before attack. O & G V & G St - gost - gost. O & G after attack - gost gost O & G after attack. O & G after attack. St, St after attack - gost gost after escape

Excluding pair, premaOG ♀, HB in H & R ♂ in semi H - semi - F, with slight tint of R. Then up, begins gosts. (This is the nearest thing to "mutual FB" that I have seen — I think.)

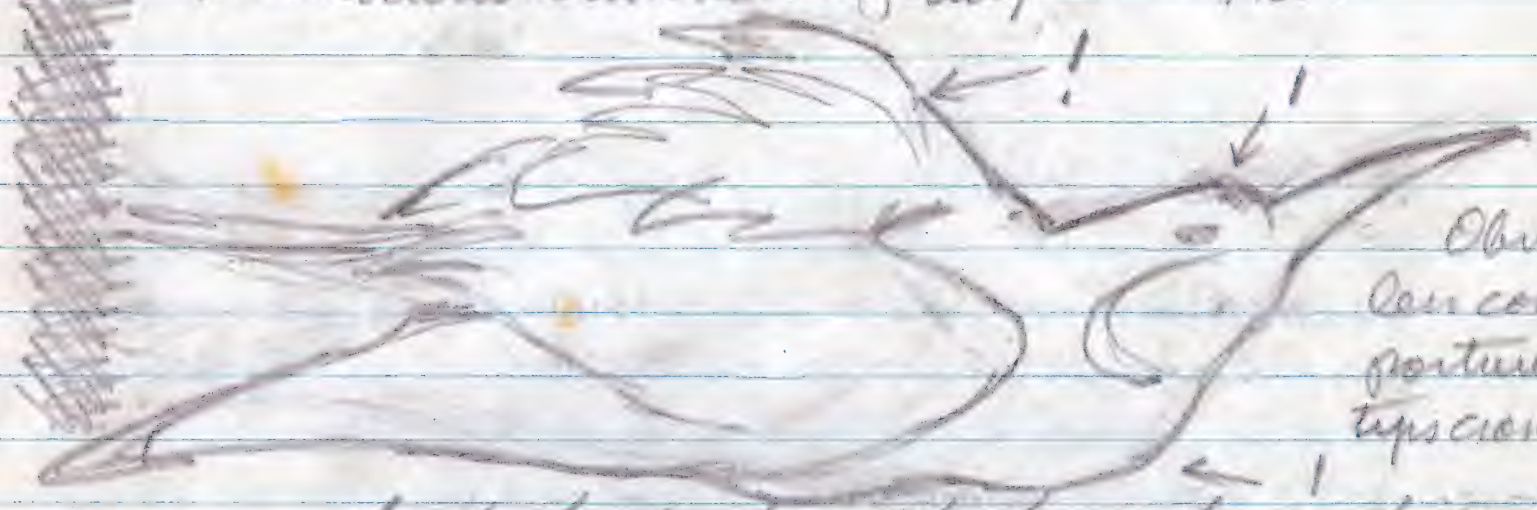
I think that I can provoke bursts of LCN from neighbors if I make a sudden noise or they see a sudden movement in the blind. This is contagious. If one bird does it, others are bound to

Ct performances are also very contagious, but the silent performances, (e.g. St), seem to be almost absolutely non-contagious)

After flight on ground, both birds fly off in Moth flight with St. Continues quite audibly, but then both relax, and I lose them from sight.

Mea, Nov. 12, 1955, F

Have seen another case of soliciting with both wings drooped, several cases with one wing drooped 4:00



Obviously much can convey their posture with wing tips curved over tail

* resting mate

St - St - St -

uca, Nov. 12, 1955, XI

Common "normal" perch posture, our colony. Bill pointed slightly downward

There are lots of copulations going on in the colony, so the colony as a whole can't be too far advanced. 5:17

MC ♀ does ✓-✓-✓-✓ ♂ does ✓-✓-✓-✓-✓.

Confirm how rare real fights are

The only really long fights occur when one bird gets a hold on the the others' neck and won't let go. I have seen this several times. One the lower nearly drowned, couldn't take off from the water for minutes.

This might make a nice drawing. Probably from above

I think the birds are silent during these long mutual fights, part of the time at least

When a fight continues like this for minutes, other birds will circle around, swooping, etc. Just like BBG. I don't know what calls, if any, they make

* under note F+Cht ✓-✓-✓-✓-St ✓-✓-✓ Gort-✓ ✓-✓-✓-✓-✓-✓-✓ F+Cht-Gort-F+Cht-Gost F+Cht-Gost ✓-✓-✓-✓-✓-✓-✓-Gost Gort-✓-✓-✓-✓-✓-St Agg.U-✓-✓-✓-✓-St.

Lica, Nov 12, 1955, XII.

terr. defense — St after attack — O-O-O-St-Gort-St Aux. V, Agg V St-Gort-St. St. St-Gort-V+G, St after attack St. St. Agg V Aux. V+G Gort-O-O-St-Gort St-Gort, LN-O+G

Confirm Lots of attacks from no-situational posture. During territorial defense almost always a trace of display, at least a momentary weak St, after attack.

Also confirm One of the best signs of pair is when two-birds parade around in V. Both usually in agg V. With repeated HF's.

terr. defense — St Gort St-Gort St. St after attack Agg V-Gort-Agg V-Gort-O+G-Gort Aux. V+G-after attack. St Gort before attack-St after attack St after attack St after attack St after attack Aux. V.

under mate — O-O-O-O-O-O

I think that aerial attacks (flying up to attack another bird in mid-air) are sometimes accompanied by "attack LCN" like LCN wants to change at me. Always happens so fast, however, that I can't be sure. A buzz, marking "a-aaar" or "ta-aaar"

Leaving 6:25.

Lica

Sunday, November 13, 1955
Chucha fur

Arrive Blind 7:10. Have to get in by myself

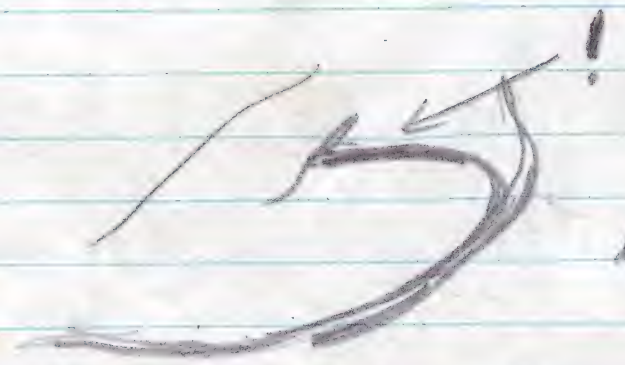
Notice one thing about Silent Pairs. Some birds in it, (particularly, I think, those that start the pair), fly in an Erratic Flight. Spectacular downward tumbling plunges, (from the top of the cliff to sea level, sometimes), tumbling & turning, etc.)

Wica, Nov. 13, 1955, II.

There is certainly something like a "Butterfly flight", buoyant flight, (quite like buoyant flight of some gulls). I doubt if it is ritualized, however; and I am not sure of its circumstances

* terr. defense

St. aux. V. F+G between attacks – (Moth flight & St after attack) aux. V. agg. V – gost. V+G before attack – St & G after attack St – gost. gost. V+G – gost – V+G – gost – V+G St after attack – gost – agg. V + HF



Ordinary position of wings during hostile performances

* sedir. moth

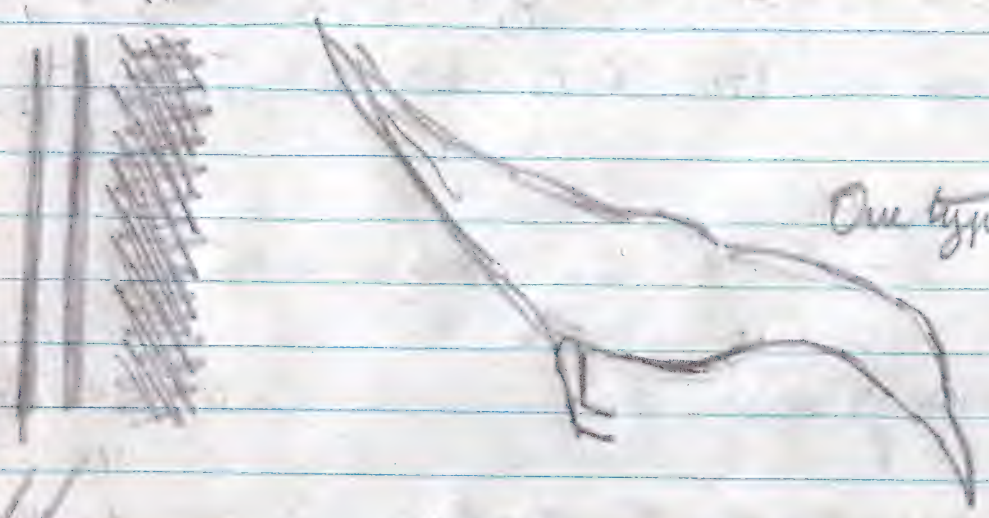
agg. V – – – – – – – – – – St – – – St – – – – – – – – – – – – F+Ct. F+Ct. F+Ct – – – – – – – St – St – gost. St – – St – St – – – – – – – – St.


* terr. defense

St + HF – gost. St. St + G after attack. LN. V+G (these 2 were probably a terrific fight darting through his territory) V+G before escape (escape in Moth Fl. + St) V+G before attack Aux. V (fallowness mixed in Moth flight + St). St gost F before attack. St after being attacked – St after escape.

mca, Nov. 13, 1955, III

Moth flight is usually, I think, with tail closed.



One type of ● posture. Bird perched on rock with plenty of room. Looks much like some forms of chasing.

* tiny defense: Ggs v. after attack — St after attack — Aux. v. St — St after attack
v/G between attacks — gost between attacks — St after attack — gost
St, v/G before attack — St/G between attacks — v/G — Aux. v. — ●
Aux v before escape — gost-gost-gost-gost-gost-gost-gost-gost

* redir. mutu. Ending 8:30 — ●-●-●-●-●-St ●-●-●-gost-St-Aux. v. ●-●-●-●-●-●-●-●-●-●-●-gost-●-●-●-●-●-●-St ●-●-●-●-●-●-●-●-●-●-●-gost-●-●-●-●-●-St ●-●-●-●-●-●-●-●-St-●-St-●-St-●-St. St-●-St-●-St-●-St 8:30

Most of what you might call the "usual" hostile circular flights by proved territory holds are in both Moth flight & St. Sometimes maintained straight through; bird still in St after landing.

One thing about redirected mutual Clt. performance. If one bird is less active than the other, it is usually the female 8:08.

Other common fighting position. Bills interlocked

Inca, Nov. 13, 1955, IV

* terr. defense — St. before attack St. Gost. F+Cht Gost St+G after attack. Gost. V+HF - ● - V - Gost. Gost. St+HF O+G. V+G Gost O+G - St. St. Aux. V, Aux. V Gost. Aux. V St. St. Gost St after escape LCN - O+G. LCN. LCN. LCN. LCN. LCN. St after attack St. Gost - St

MC ♂ Agg. V - Aux V - ● - ● - ● - ● - St ♀ ● - ● - ● - ● - St

Watching A again. I think A must have been slightly parasitized yesterday morning, even though ♀ not present. Certainly parasitized yesterday afternoon. Same ♀ (recognizable because of smear on forehead back most of this morning) Also ♂, presumably A

♀ on ground, ♂ back, with bit of food in bill. ♂ in "F", ♀ also in "F" ♀ a little Cht in F ♂ perhaps a little also ♀ takes food. Then both join in reduced mutual Cht performance with neighbors. ♂ more vigorous than ♀. Gradually dispute subsides ♀ walks away in Agg. V. ♂ flies away 8:30

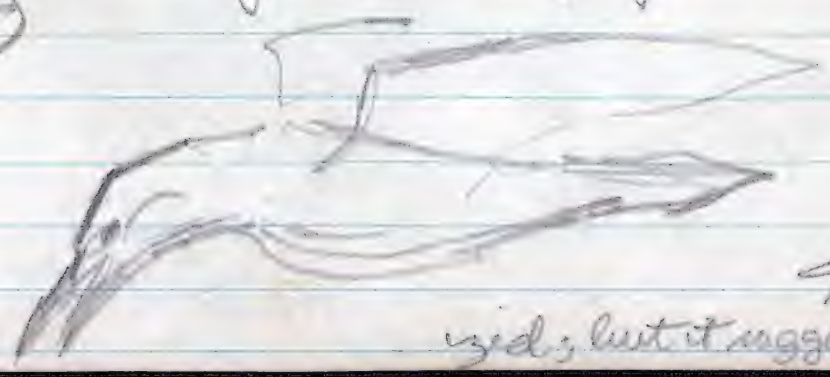
This F, in which food is presented, incidentally, is much like the food-presentation posture of ♂ Laughing Gulls described by Hoff.

△ St. ●, LCN. LCN. St. St. St. St. St Gost.

A pair again. ♀ on ground. ♂ back with food. ♂ in FO - F. ♀ burst of F+Cht. ♀ takes food. ♂ V - ● - V - flies away again

△△ ♂ Agg. V. ♀ H+R+HB Again, exactly the same.

A pair. Land together after silent Pause. Both F+Cht. ♀ takes food. ♂ Gost - ● - ● - ● ♀ ● - ● - ●, but much less vigorous than ♂ (Don't know if this last Cht performance was provoked by neighbor or not)



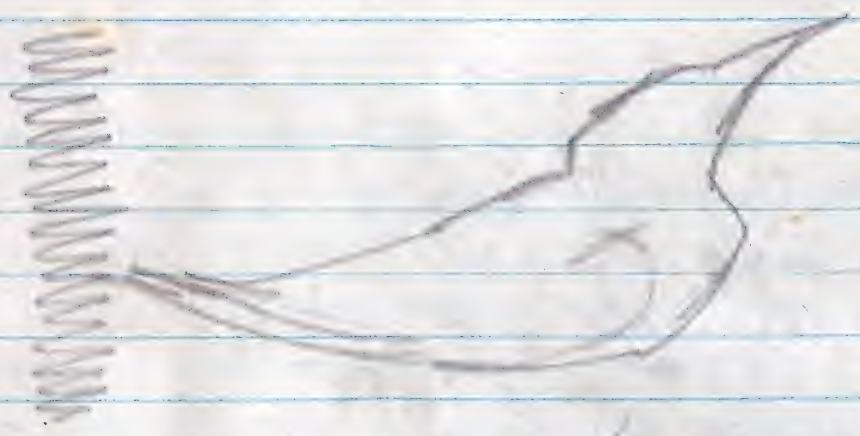
Another posture of bird carrying fish. This also appears in ritualized, but it suggests that other posture is per-

Mica, Nov. 13, 1955, V

Raps a low-intensity St, i.e. this posture

Fighting birds with bills open, but definitely silent. Seen it twice

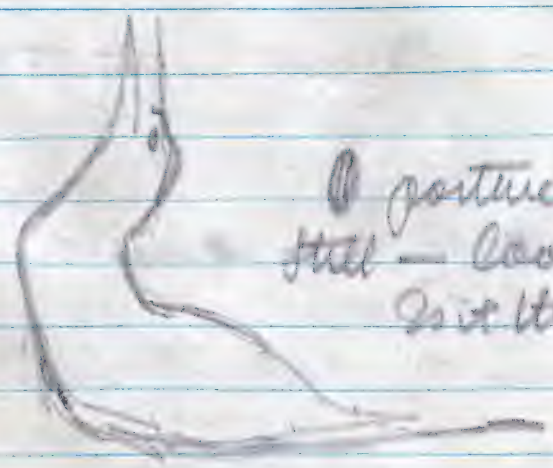
MC Apparent MC. Female early pairing ♂ on ground, ♀ lands ♂ does ♂-gait-V-♂-V-♂-gait-walks around in Agg V. -gait-Agg V-walks to nest hole, disappears into it ♀ does almost nothing but stand & walk around. Female follows ♂ to nest hole, stands outside, stands, does about five gaits from time to time.



Low intensity St.

* Definite. gait-V-gait-V-gait-V-O+G-V-V-gait-V-gait-V. St+G after attack-gait-Agg V. St+G during escape - St+G after escape - St before escape. (Both singing St after attack) O+G-V+G-V-gait St. St gait Agg V-St O+G. Agg V before attack -

Once in V or O+G, bill slightly open, saw-tongue visible. This is certainly not usual.



posture much like St. same angles. Still — looks "longer-necked" somehow. Is it that the neck is thinner??

Another case in which it appeared to be the ♂ of the pair scraping (or, rather, digging, in this case)

Wica, Nov. 13, 1955, VI

MC. Both Agg. V & MF. 9:30.

terr. defense. Agg. V after attack, St, St after attack O+G LCN, St-Gort. St. LCN-LCN

LCN. LCN-LCN-LCN LCN-O+G-LCN-LCN LCN LCN LCN-LCN LCN O+G. O+G. LCN before attack.

Bird in nest-site. Possibly mating. Approached by ♀, more or less contented in Aux. V. Nest-site bird alone, alternates agg. V's & Gorts. Finally attacks ♀, St after attack, returns to site. ♀ flies away, starts to return again in Aux. V

This is certainly part of pairing.

I am almost certain that same ♀, after starting to approach nest-site bird again in Aux. V, flew away several yds, started to approach another territory in Aux V, then flew away again

Is this a possible part of pair-formation?

Have seen another bird which appeared to be "searching". Again small, may well have been ♀ just standing between territories, in Aux. V, looking nervous. Then flies to another place, approaches nest-site, unoccupied, stands looking at it a long time, in long-necked semi-F or semi-L. Then flies away, to a third place, approaches a pair at another potential nest-site. Again in aux V & nervousness. Pair react by mutual redirected Cht performance. "Searcher" finally flies away to a fourth place. Lost it from sight

This incident certainly looked significant. The "searcher" was not looking for place to nest & preen. Made one or one "nervous" preening movement when at its most "nervous". 10:00

MC. ♂ Agg. V - O - St - O - St ♀ O - St - O - St

Again & again have seen Moth Flight & St after attack.

terr. defense. St after escape - St O+G after escape Aux. V. St-Gort. Agg. V after attack. O - St - O - St - O - Gort - O - O. G. V after escape Aux. V. Aux V before escape - Aux. V. Aux. V. Aux V. Gort Gort - Gort - Gort - O - St - O - St - Gort - Gort Gort Gort Aux V. Agg. V - V

uca, Nov. 13, 1955, VII

head quite round, bill part slightly "swollen"

FO

Photo ♂ standing beside ♀, holding fish in FO shown above. ♀ just sits, one limit of Cht in semi F, semi ♂ off, circular flight, back stand, in FO ♀ another small limit of Cht in semi-F, semi ♂ off, circular flight (It may be the same ♂ back now, 10:25, but if so he has swallowed fish, alighted some feet away, given up after one attempt to reach female — neighbors threatened in his way — and begun to preen)

A/C Both Cht in F — ♂ — go into nest site to Nt Hero in semi-F, semi — posture

O/G before attack — S/ after attack — Gent LCN-O/G O/G

Note about return from Silent Power. Come in with burst of LCN's. Stand at first with burst of LCN's. Then lots of mutual redirected Cht, and then relative peace reigns in the colony

HF is sometimes accompanied by a tuck of tilting, always much less extreme than that of the Little Gull 11:00

Again see that "presentation of fish" posture is an F

Have seen another "searching". Similar before Snowy bird, going from potential nest-site to nest-site. Nervous

uca, Nov. 13, 1955, VIII

* ter. dispute N gost after attack. LCN LCN LCN LCN LCN LCN-gost-LCN-LCN. LCN-O+G LCN-O+G Agg-V before attack - St after attack - gost. O+G before attack - O+G after attack - O+G. gost after escape LCN-LCN-LCN-LCN-O+G. V+G St. Aux. V O+G. gost. gost after attack gost gost-gost-gost gost. Agg V after attack. St St-gost St-gost.

One LCN call of flying bird, flying away after being attacked

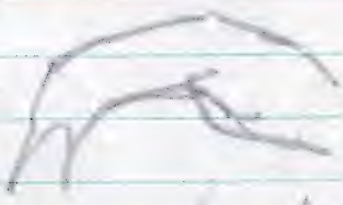
The only time I have seen even remotely approaching a long-sustained territorial dispute are long duets in which 2 pairs stand side by side, performing mutual duets of reduced clit ♂ and ♀.

One copulation in which ♂ perched down at ♀'s head

* ter. dispute Agg V before attack. gost after escape gost gost gost gost gost-gost Aux. V Aux. V O+G. St+G after attack St+G after attack - gost V. Aux V before escape. gost after attack - V+G. gost+G after attack St-St St St. LCN. St after escape. St. gost St. gost St+G after attack O+G. O+G. St St. gost gost ♂-♀-♂-♀-♂ gost

After being attacked in air, one bird circles, low, in posture with LCN's. Then lands. (It is possible that this jumping posture is just a landing posture.

Course Ca



St after escape. St gost St. gost - St - gost.

* ter. dispute St ♂-♀-♂-gost St-gost ♂-gost - St. St+G - gost. St+G St. gost

Once MB with bill opening + closing and absolutely no sound audible

Leaving 12:10 p.m.

Stop 3:00 Back 2:35. Have to get in blind myself

* ter. dispute gost gost gost St-Aux. V. O+G after attack St-gost-St.

Uica, Nov. 13, 1955, IX.

Begins again. 4:10 Agg V after attack Goes Goes V after attack Agg V before attack lined up Chf altogether Agg V after attack F+Chf F+R – F+Chf Goes – Lt – Goes – St – Goes St – Goes Goes St. F–Chf – Agg V before attack

♂ Agg V – HF – V – OCB – Mar. ♀ semi – V.

Notice that ♀ loses R as soon as ♂ mounts.

3:00

"♂" stands in semi-OF, semi-H, with fish. Goes to pot nest-site. F+Chf into hole. Walks away in F. Walks toward a ♀, a few feet away. ♀ in H+R, is HB. ♂ steps ♀ steps ♀ flies away. ♂ off in little circular flight. Absolutely unmotivated. Back to same nest site. Looks in it in F. Flies off, to attack a neighbor. Back mined without circular flight. Then starts two other nearby potential nest-site. In F each time, almost in hole. F+Chf in one of these holes also. Then backs out, stands in F+FO. Approaches ♀ of adjacent pair. "♂" in O ♀ and fer mate do initial reduced Chf performance + "♂." He flies off, back to his 3rd potential nest hole. F+Chf into hole. Stands in F or FO. Then flies off to attack another term who was near his first hole. Latter flies off. ♂ goes into first hole. Chf in F. Another bird ("♀" 1) approaches. ♂ turns toward her. She in aux. V. ♀ 1 flies off. "♀" 2 lands, does Lt aux V – St aux V. ♂ looks at her in FO. Then another bird, "♀" 3 or "♀" 1 again lands, in aux. V. Starts to approach ♂, then flies off. Then things begin to happen a little more rapidly, become difficult to follow. ♂ starts flying back + forth between his first + 3rd nest holes. "♀" 2 flies off. But, as ♂ flies back + forth, standing in F or FO in between times, there are at least 2 smaller birds in the general neighborhood, who seem to be facing ♂ and "eye"ing him, and who are standing or walking in aux V + St, with occas. Goes. This continues a long time. ♂ finally F+Chf in his first nest hole. Then attacks one of his "admirers" who has been standing in St. Goes back to third hole. Stands in FO. (Fish half-digested now.) F+Chf in third hole. Walks around. F+Chf in 3rd hole. Stands in FO. Visited by "admirer", who stands in low intensity aux V. ♂ faces her in F + St (Latter probably attempt-it!) Then flies off to attack 2 concentric intruders at first hole. Goes to hole F+Chf. His admirer starts to follow him on foot. Another admirer shows up also

uca, Nov 13, 1955, X.

starts to approach ♂ on foot, in weak Aux-V. ♂ attacks latter, who flies off. ♂ back to first hole, F+Cht; then approaches neighboring ♀ who is foliage from her nest. ♂ in F. No response. ♂ back to first hole F+Cht in hole. Then alternates between first and second holes. F+Cht in both. Meanwhile, the admirer he had not attacked has gone back to 3rd hole, walks around, looks in hole from time to time in forlorn fashion. Approaches neighbors once. Finally flies off. Two more admirers show up at considerable intervals. (There might all be the same bird, for all I can tell) One in Aux-V, one in Lt-Aux-V. Each time ♂ sits and looks at them. Finally makes toward them. Admirers fly off at once. ♂ back to 3rd hole. Stands in FD. Goes into hole once or twice. Once attacks a nearby bird. Back to 3rd hole. Approaches neighbors in F. Back to 3rd hole. Walks to 1st hole. Back to 3rd hole (Finally in F while walking) Stands in FD, in O briefly during nearby scuffle which probably alarms him. F+Cht toward a nearby bird (first time he has done it in hole). Back to 3rd hole. Stands in FD. Walks to first hole. Sees nearby bird and makes to 1st hole, F+Cht into it. Out. Approaches a nearby bird. In FD. Is attacked. Retreats a few feet. Does F+Cht toward attacker. Stands. Then approaches a nearby bird who is in H+R (This may be the bird that attacked him) Latter stops H+R ♂ stops. ♂ goes to first hole. F+Cht into it. His neighbor does long H+R, then goes to her own hole. ♂ walks to second hole. Looks into it. Then his heart's desire arrives. Lands right beside him. Burst of ● by both bird. Newcomer, "♀", takes fish immediately, keeps it in bill. Another burst mutual Cht ●. Then ♂ walks around in usual "mated" Agg-V & sees HF and sees ♀. Then, again, things become complicated. Much flying around. Also Silent Panics in color. Anyhow, one ♂ flies off in circular flight with ♀ several times, ♀, still with fish in bill, flies off in usual mutual of "fish-carrying circular flight". Each time birds come back mated. A variety of "greetings". Once no display at all. Several times mutual ●, (quite low angle), more vigorous on part of ♂. He starts preening in quiet intervals. ♀, still with fish in bill, twice approaches him in F, with R. ♀ finally swallows fish. Birds stand facing each other. Then, after both have flown off in a Silent Panic & returned, ♀ approaches ♂, HB in H+R. Continues a minute. ♂ looks at her. Suddenly attacks her. Both birds do Agg-V (more vicious on part of ♂) ● - ● - ●. Then everything quiets down. It is all over for the moment.

Mica, Nov. 13, 1955, XI,

This began 3:00, ended 3:50 !!!
Add a few notes about this incident.
This was certainly at least a relational early stage of pairing. Certainly shows how actual pair-formation can occur.
The "admirers" were very reminiscent, in their general "nervousness", of the "searchers" I noticed this morning.
When I look back at the pair (call them B), all is serene & placid. I do notice, however, that they perform a mutual re-directed ◐-◐ ceremony during dispute with neighbors.

Another fish incident, which I didn't catch well — but a few points are clear. ♂ stood in F with fish ♀ HB in H with R. ♂ obviously reluctant, turns away flies off back, ♂ may dit in F & begins HB in H with R again. Again ♂ turns away flies off back ♀ HB in H with R again. ♀ small, very fresh ♂ immediately ◐ in angle somewhat ↗. ♀ swallows fish. Then both stare behind rocks. But I can see that mutual ◐-◐ performance proceeding. Later on ♂ brings another fish this time less reluctant can't follow it well. But observing hands over fish: mutual ◐-◐ (after a swallowing fish)
After handing over fish there is always much swallowing, QB, and head-shaking in V or semi-O.

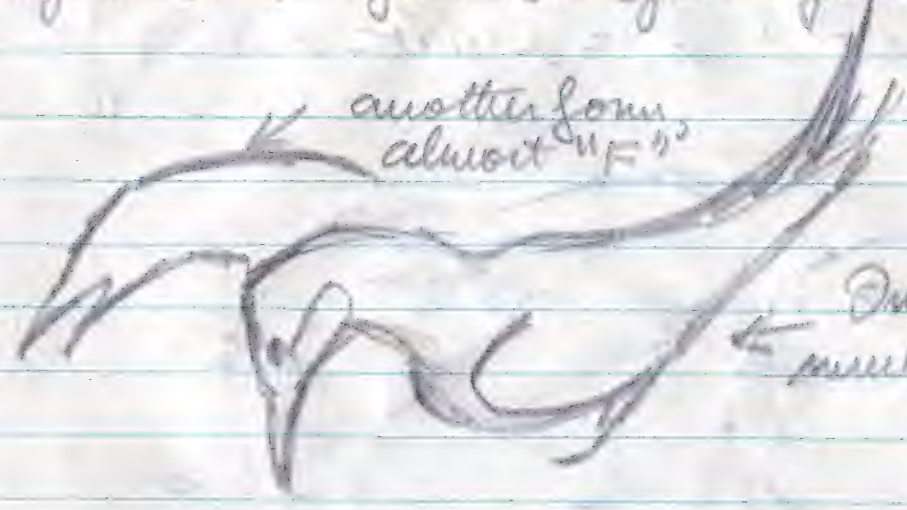
To sum up — about displays between ♂ & ♀ during early pairing phase — it is V and related patterns (HT, and possibly St) during periods of relatively low intensity, and Cht performances at moments of "crisis".
Still and all — this species has nothing like the conspicuous, rapid & varied sequence of "pairing" displays I am used to seeing in gulls. 4:30

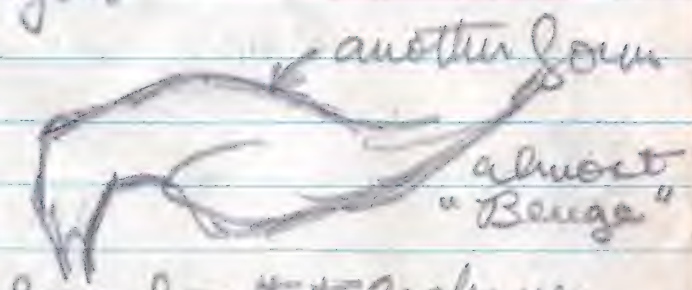
Although I haven't been able to make decent counts, it is my impression that an attracted bird is usually either in no display at all or in something like weak aux. V or St.

* tour [illegible] St = good St after being attacked - good. St + G after attack - good. 1 CN - 1 CN - 1 CN. St after escape F + Cht ◐ F + Cht

Inca, Nov. 13, 1955 XII

St below attack aux. v. got. got. got. got. axy. got. v. got. v. got. got. got. got. got. St. got. aux. v. St. OTG OTG. for. got. St. v. got. St. got. got. got.




One form of that looks very much like Cholung 5:00.

Another pair in which it was the ♂ along the excavating. Again, same pair.

O & G can also be with wings raised & spread.

Steve again noted, this time definitely, that the only sound heard during actual aerial fights is LCN. And this is not uncommon. Don't know which bird is doing it, but I presume an aggressive one.

No doubt about it, this the mutual reduented performances that are characteristic of long-continued boundary disputes.

I think that the relatively short-neched "Bengestelling" form of is most characteristic of the intense mutual reduction performances. This may be due, a consequence of the limited space available in the entrance to the nest hole.

mca, Nov. 13, 1955 XIII

* Grp displ. G gst gst F+ Gst F+ gst gst gst

Nyca, Nov 13, 1955, XIV

[illegible] UG (leading to Mott flight without [illegible] after attack [illegible] after attack [illegible]

Incidentally, before I forget, I should emphasize that I am alive at autumn now that there is no such thing as a "feeding call" or sex mean in this species

Leaving 6:22

Monday,
November 14, 1955,
Dividing flock

7:15. Have gone back to small "colony", the one in which the birds don't seem to have occupied territory yet, in order to see if I can find anything like a "fish flight". Watching communal area rocks

When they fly off rocks, in flocks, in more or less silent fashion, they still have tendency to visit potential nesting area, (described that, mentioned earlier). They only stay, after travels, (and, of course, my blind is nowhere about today)

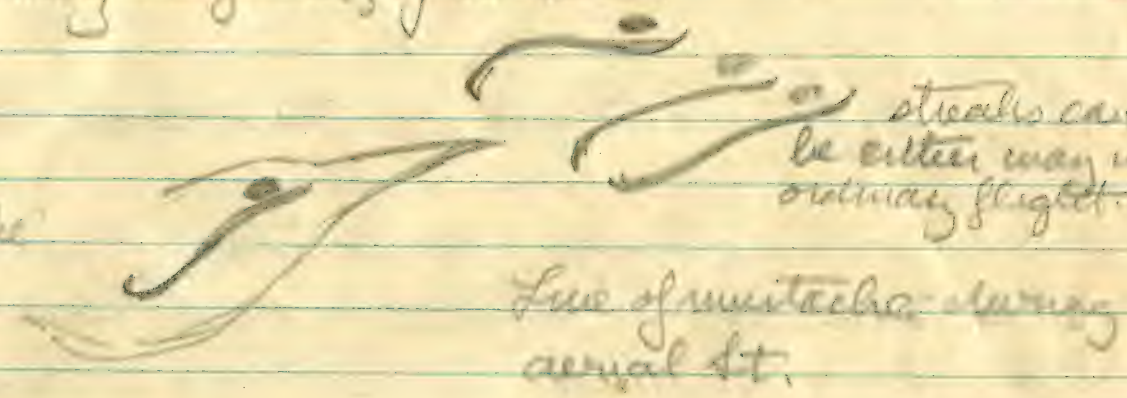
* communal area 7:30 - st-gait st st st agg. v. g+c - gait - O+G O+G gait gait st v aux. v. st-O. st-gait-st-gait-st. - after attack - H. H. gait st gait st-gait-st v+G gait O st. st. st before escape - st after escape LCN-LCN-LCN. gait-v. st-gait. st-gait st gait aux. v st-gait-v. LCN-LCN. agg v after attack - st agg v. gait - O gait - v.

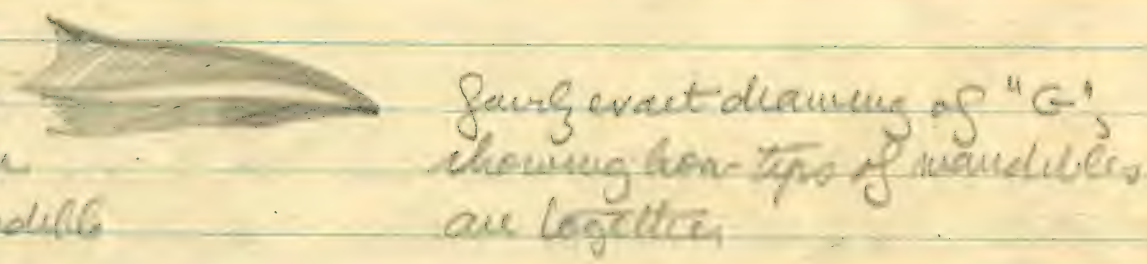
♀ soliciting on rocks, (this must be communal area, pure rock loc, capeln' of "Cathy" a nest) ♂ pounts, capeln. Gait cap ♂ agg v - gait - agg v ♀ st - H+R+HR

Notice that here, where there is plenty of "bird-room", that it is common to be territorial, when two birds of pair are performing nest rector. Not having dispute with neighbors (Does that mean that ● and ● are not alive anymore?) A "seal" F

Inca, Nov. 14, 1955, II.

posture, although bill not pointed very strongly upward.
This may be significant. An alternation of O and E is very reminiscent of the Long Call performance of the Blk g. Might be strictly homologous. But here the difficulty is the rhythmic, very so-called "high intensity" rhythm of the call.




Ordinary flight posture — 8:00 LCN can be given from this posture, and is frequently

▲ St. Lt. O. F+Cat. Lt.

Should mention, before I forget, that the day I came here in the afternoon, there weren't even any birds on the communal area roosts. This suggests that they only come to the communal area in the mornings at this stage.

Notice that none of the V's in which waters "parade" have an almost imperceptible G too small to be seen except at very close range and the right angle.

The usual sequence of "M.C" displays is, I think, first some V-ing with an erect posture: — then some mutual Lt. performance — then subsidence and relaxation; usually passing through a V stage on the way down.

nica, Nov. 14, 1955, III.

Position of head & angle of mustache in F.

Is the yellow wattle at gape swollen during hostility? It is certainly much more conspicuous then than when the bird is sitting relaxed in a neck-more-or-less-retracted posture. (Can also confirm the fact that "earrings" are erected during hostility, at least the more aggressive forms, including ♂ and ♀. Just watched a bird standing in quite alert posture, neck mod. long, with "earrings" flat to side of head & neck) 8:35

Watching these birds has given me the impression that F & Clt in a relative low-intensity performance. Sometimes given very brief by a bird when its mate lands beside it — without other Clt patterns i.e. without ♂ and ♀. Also given briefly by both birds, as brief mutual reinstated performance

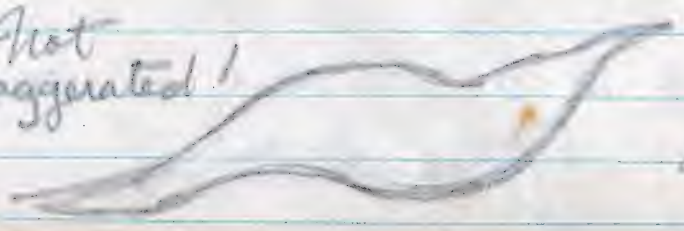
Also, before I forget, the F & Clt given by "♂" is preceding fed to "♀" is apparently almost inaudible. At least I have never heard it — and I have been pretty close to such "♂"s. On the other hand, however, the F & Clt done by mates, and that done by solitary birds during disputes with intruders, is certainly audible (at least, in the cases I have been near enough to hear)

* Combat area

G+G, LCN. O+G O+G - LCN - LCN - O+G. dogs U dogs U ft. ft. dogs U - ft. V+G / V - V+G - V - V+G - V ft after attack ft during retreat ft Gort - ft - Gort + G - ft. gort gort gort gort gort ft Gort LCN after attack

Explaining one point. I have seen very few (probably no) reduction attacks on neighbors performed as a result of hostility between mates. Reduction is all the other way round

Not exaggerated!



Curved body is almost invariably, or always, present during aerial ft

Inca, Nov. 14, 1955, IV

LCN given by bird before landing. This is perhaps the nearest thing to a Landing Call I have seen 9:00

In all the G and Clit performances, the bill is not noticeably open behind the front part of the wattle

Some of these birds are moulting wing feathers

* common area

V. LCN-LCN-LCN-O+G-LCN-O+G-V O+G-LCN-O+G-LCN-O+G. LCN. agg. V Gust-V before escape - Gust. V. after escape ● - ● - ● - ● - ● - ● - St Gost Gost. any V V+G before attack - LCN after attack LCN - gost

Have noticed quite a number of birds flying off in St (not Moth Flight during Silent Pause). Does this mean that aerial St with Moth Flight contains a stronger attack element than an St without Moth Flight??? Must check. Confirm 9:45 Have seen it again & again.

Have again heard that "muttered" brief Clit by birds flying up in Silent Pause. This must be the nearest thing to an A.C. But not, apparently, given by birds just flying overhead & not hovering

Wings are usually more spread than raised during LCN.

Notice that head is fairly flexible in the LCN complex of patterns. Often turned to face opponent.

When the bill is really widely open, as in LCN's and some G's, it is open all the way to the end of the wattle

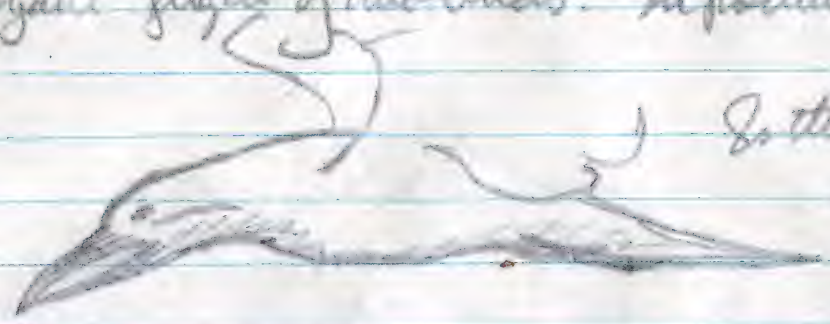
* common area

● - V. U+G ● - Gust O+G-LCN-LCN-O+G-U+G-V O+G. U+G. F+Vat F+Vat ● - ● - ● - ● - V Gost before attack - St after attack ● - ● - ● - ● F+Vat F- F+Vat - gost. St - gost St-gost St-gost St after escape - gost

inca, Nov. 14, 1955, V.

some V's look very large-headed, small-thin-headed, i.e. like the V's of gulls.

"Buoyant" flight of two birds. In position with G come ca



Is this significant? Couldn't hear any call.

Further notes about "usual" M.C. Gorts are not infrequently associated with the paradigm V. Not, I think, when V's are at their most intense. Its are relatively seldom associated with V-parading (although a bird will frequently give an extreme St. immediately after landing. But many, many birds landing without Nate will also St. This St may be as much reaction to neighbors as anything else). Perhaps the fact that I tend to think of the "usual" M.C. as being V complex → Clit complex → V complex is due to the fact that so often one mate lands some distance from the other and then approaches on foot. When one mate lands beside the other, I am almost certain that the "usual" sequence is Clit complex → V complex.

Aerial LCN of juvenal (complete juvenal plumage) sounds pretty like the usual LCN of adults 10:10

Calls during the brief visits to potential colony sites are mainly the same as when a flock returns to the colony after a silent Panic. But a general burst of LCN's on landing & after landing. Then much general Clit

* Community area V

Ending 11:00

V+G before attack – V+G between attacks Agg V – Gort – Agg V – Gort St – Gort – Agg V. V+G before attack – St after attack – Gort St – Gort St – Gort V+G St – Clit V+G – Gort V+G – HF V+G V+G B+G Gort St – Gort Gort Gort Gort Gort O+G – Gort – G. Gort St St – Gort Gort St – Gort Gort Gort F – Clit F – Clit St St St after attack

Nice, Nov 14, 1955, VI.

Two birds circling near me. Probably reacting to me. Flying in "buoyant" flight part of the time. Several LCN's. Also saw one flying with G. In "hanging" head-neck posture drawn on preceding pages.

Some G's with extreme, wide open bills. One, one of the birds, in wide open G, suddenly glides several yards with suddenly slower wing-beats, of wide amplitude. Must have been at least 6 or 7 strokes of this (which might be called the "real" Butterfly flight). Then resume sailing flight, circle once more, birds separate, land in different places.

There is no doubt but that the aerial LCN appears in the same circumstances as the aerial LCN of gulls. Usually stray birds, for instance, one or three when flying over me. Certainly not common. However, relatively less common, in all probability, than the LCN's of most of the species I have studied.

Forgot to add that the other day, when I was in blind near a potential colony, and when it was visited briefly by a small flock, noted that several birds entered holes by long flights.

The Erratic flights of this species, the ones I have seen at least, contain much less twisting & turning, than those of Bonaparte's Gull.

Well, to sum up about fish flight, there doesn't seem to be any. I haven't seen a flying bird carrying a fish all morning. I haven't seen any of fish on the communal rocks. I haven't seen any trace of High Flight or gliding descents either. This apparent absence is quite unexplainable, and undoubtedly of considerable comparative significance.

Bird flying in group near me gives 2 LCN's, in "hanging" posture, with slow wing beats of great amplitude (perhaps a little less exaggerated than the "Butterfly flight" described above).

The whole status of "buoyant" flight is rather a pro-

Uica, Nov. 14, 1755, VII

Can little intraspecific at best. And probably several types. 1. Female showing birds in a hurry & nothing else. Perhaps unlikely. 2. Rapid buoyant flight combined with erratic flight patterns. Particularly with birds that appear to "rot off" or "trigger" fulent Panics. 3. Perhaps during simple circling near a potential predator. 4. The last type, if it does really exist, is probably just a low-intensity version of Butterfly flight, in hanging posture, with G and/or LCN.

Leaving 11:20.

Back to Large colony, where I worked yesterday & the few days before, 1:35. Have to get in blind myself

* Very defense

Ag. V after attack. LCN before attack - O+G after attack LCN LCN LCN - LCN - LCN - LCN - LCN. V. V. F+Cht. Ag. V. V. F+Cht. St. Gott. V - Gott - V. St. Gott+G after attack - St. F+G. St+G after attack - V. V after attack. F+Cht - V. LCN - O+G - V. LCN - O+G. LCN - O+G. O+G. O+G. O+G. V+G

LCN - LCN - LCN. LCN. LCN - O+G - Gott. LCN. LCN. LCN - O+G.

This LCN before attack during intraspecific fighting is the ordinary LCN, or, at least, only a brief, muffled version of it. It is not the type of LCN, the "attack LCN," sometimes directed at me. This latter type only occurs, apparently, during intraspecific fighting, immediately before certain sexual attacks. Even then always brief and not very conspicuous.

Can trying to take over blind as nesting site!! Entering it usually provoked much Cht, w. F & ● (there's no room for anything else). Then ♀ enters first.

Have seen a number of birds carrying fish, and also a number of "scouters." Latter are really all over the place, but usually inconspicuous. Interested in holes as such. Also much interested in "♂"s with fish. Usually just start to nibble up to ♂, in rather weak aux. V. One bird, however, repeatedly Cht at a "♂" each time he

came back from a circular flight. The behavior of most "males" observed appeared to belie that of ♂'s observed previously.

Peculiar incident: ♂ & ♀ previously early stage of pairing flew together. Walk around a little. Alternate periods of ♀ parading and chit. V of ♂ gave ingressive. V of ♀ usually aux. The chit was almost pure F much of the time, trace of ● occasionally. The interesting thing about this pair was that the ♂ suddenly attacked ♀ three times, at intervals of several minutes. Each time ♂ attack from Agg. V (see lines), just crossed momentarily after ●) ♀ immediately jumps back a few inches, does either st-Agg V + HF - Aux V or Agg V + HF — Aux. V. (Interesting that HF is almost all in Agg. V) Then goes on a long while. Finally ♀ down in H, develops R, begins HB — and the ♂ attacks Reagan 1 2105.

The above solicitating ♀ was approached by a ♂ who flew in with fish. ♂ stood in usual FD. Got no response from ♀ who was preoccupied with her own ♂. (It is remarkable how these fish-carrying "♂"s are attracted by solicitating ♀'s.) ♂ then goes to a nearby hole, still carrying fish, enters it, chit in it. Approached by "neighbor" or "admirer" in usual way, and the ♂ attacks the "admirer" in usual way. Both fly off.

* type defense

V+G ♂ st after attack. V between attacks - ♂ st after attack. st + st after attack - V+G. V+G - ♂ st. O+G - O+G - V+G - aux V - V + G - V HF after attack. F+HF - st st st after attack. Agg V + G after attack. L+H - L+H - O+G - L+H - O+G. L+H - L+H - O+G. st after attack.

Something I haven't emphasized enough in my drawings is H+R is the height to which the rear end of the body is usually raised.

Nica, Nov. 14, 1955, TX.

* terr. display — St. gort-aux.V gort after attack - gort-gort St after attack - St LCN-O+G LCN. O+G aux.V. gort gort gort after attack St gort St-gort gort-V-gort gort gort-gort-G-gort V+G - O+G before attack - St+G after attack G-gort-G aux V

♂ standing in alternate FO & F, with fish. Attracted by ♀ who is in H+R, and who HB continuously. ♂ just looks ♀ tries to take fish, ♂ won't give it up. ♂ goes on circular flight. Back as before ♀ finally begins alternating HB with side to side head motions, backing into ♂, as if immediately before copulation. ♂ mounts. Lots. Then make the brief cop. tail movement — no more. Lots. Eats fish. Then involved in fight with neighbors

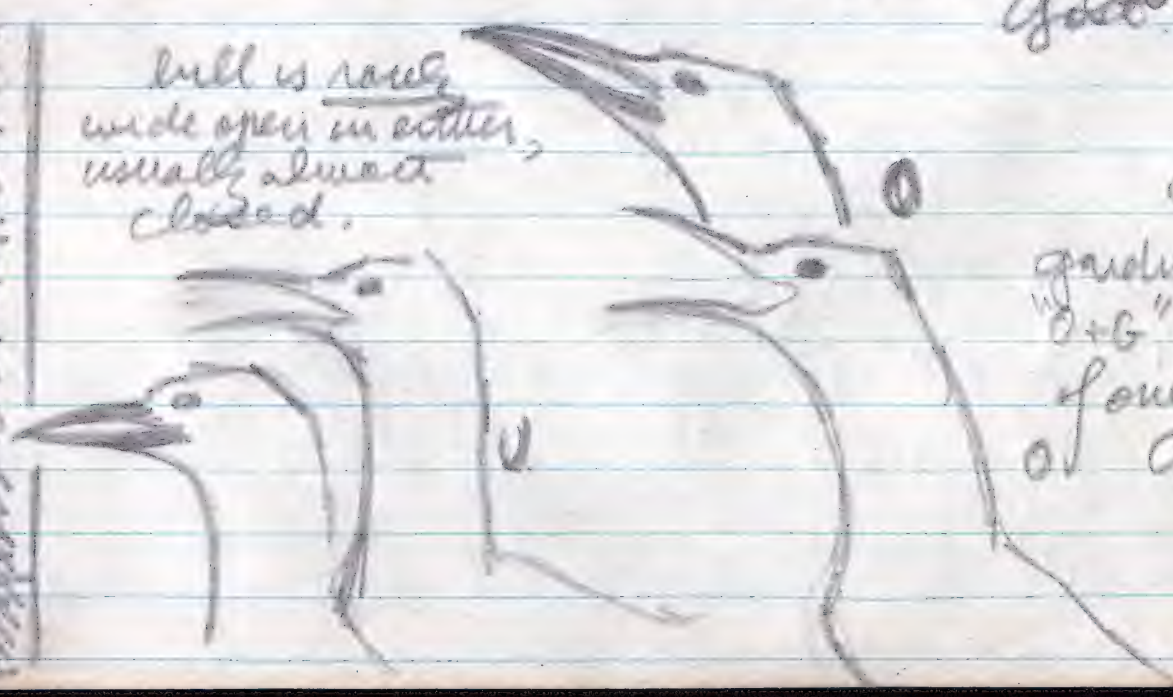
Another ♀ selecting for fish. In H+R ♂ takes it and immediately flies off ♀ follows 3:07

One ♂ with fish, making little circular flights, landing in at least 7 different places, but ♀ divided between this little colony and another church at least 500 yds away. While I watch he gets no response, and then I lose him.

V+G - O+G - LCN - V+G LCN - O+G - LCN - O+G - LCN - O+G - LCN - O+G LCN. (stimuli include barley & crackers dropped out of blind)

* terr. display — aux.V St-gort St. aux.V O+G after attack - St V+G after attack F+Cat. St. V+HF agg. V after attack - gort. St. gort gort. V. gort. F+Cat

bill is rarely wide open in either, usually almost closed.



What I have been regarding as typical "V+G" and "O+G" obviously variations of one homogeneous pattern. All are low-intensity LCN

mca, Nov. 14, 1955, X

Briefly watching several ♂'s with fish. Mated, at least a little. ♂'s stand in FO tend to present in F, with or without "silent Chit". ♀'s response to ♂'s varied. Sometimes "begging", H+R+HB. Sometimes F+Chit (either as soon as ♂ appears, or when he begins "silent" Chit) 3:40

* tern V dispute F+Chit-Gakt Gakt aw. V O+G after attack St. Gakt Gakt, F+Chit F+Chit O+G O+G St after attack. Gakt St. Gakt Gakt Gakt Gakt Gakt O+G — V O+G Gakt after attack - Agg. V

"O+G" intergrades completely with "V" + G on the one hand and "F" + G on the other.

intergrade between "O" + G and "F" + G, rather short-necked

G in air, in semi-St posture, by bird flying up to attack an opponent from below. (I suppose some G, in some posture or other, is always the preliminary to attack, in air and probably elsewhere) 4:40

♂ returns, fish. ♀ HB in H+R ♂ goes to next hole. Silent F+Chit into it. ♀ joins him at entrance to next hole. Does F+Chit also (can't hear it, but probably vocal) ♂ out of hole, off on circular flight. The whole procedure repeated as before, exactly, except that this time ♀ goes back to HB in H+R. Then ♀ off on circular flight. Back ♀ HB in H+R ♂ stands in FO ♂ off two more circular flights. In each case, gets the same greeting on his return. HB in H+R by ♀ at first, then F+Chit by ♀ after he F+Chit into hole (♀ stands beside him, behind him, and facing into hole also) ♀ begins HB in H+R whenever ♂ backs out of hole

♂ in F with fish. No ♀. ♂ makes bill movements, slight, and, I think, utters same soft "wah" or "oooh" sound ♀ makes during

MCA, Nov. 14, 1955, XI

HB (Word of caution: this "ocah" transcription may make it sound like McCall of gulls — and so it is — but ocah note much shorter).

* tyr. defense F+Ht aux.v - v+G - aux.v - Ht - aux.v. agg.v agg.v agg.v
after attack O+G O+G before attack - 20+G after attack - v before -

Notice that ♀, displaying with ♂ who has fish, while doing much of her Ht in F, is also quite willing to ● and ● (even though the ♂ does not ● and ●) — particularly when disputing with neighbors. Hers ●'s and ●'s, in this last situation, are reduced to the same degree as usual.

One ● posture is exactly like Gost

Very short-necked

None of the Gosts or ● has the real "hump" of the "Bauge-stellung" of the Sterna terns. This Gost is apparently ambivalent, inasfar as it is nothing more than the intention movement of pecking downward, (this explains why it is still exactly like the "Gostbe-stellung")

gost →

← another ● posture like Gost (this angle of head + body, + length of neck, is extremely common in real Gost — but much rare in ●, presumably because it is a "low-intensity posture").

* tyr. defense attack - St after attack Gost agg.v after attack. St. aux.v. Gost ~~St Gost St gost St Gost St gost Gost gost agg.v~~ before attack St after attack St after escape Gost St ●. St after escape.

Lica, Nov. 14, 1955, XII

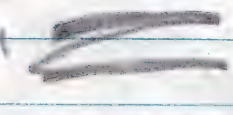
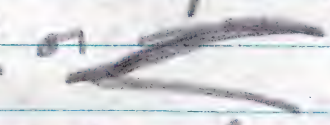
Early pairing behavior. Much quacking in V by both (clear retreat in any V, advance in agg V), then ♂ begins attacks ♀ from [redacted]. (Of course, he had to come out of the [redacted] portion in order to deliver the attack — but this was very rapid, as attack was in progress) Then both Agg. V, (out with trace of G). They mutual [redacted] performance and temporary relaxation 5:50

* terr. V define

Lt after escape. Lt between attacks - Agg V + G between attacks
~~Gort O+G - O+G - O+G - O+G - Agg V~~ (followed by Mott Right with Lt) ~~Gort Gort~~

The 2 commonest [redacted] postures seem to be the long-necked one, rather reminiscent of an L, and the shorter necked one, like Gort with bill all the way to the ground

I really don't know what the difference between them is — except that in some cases it appears to be a matter of room available.

I have never seen Cht with bill wide open. It is always moved rapidly, between half open  or  (at most) and closed ♂ (perhaps not blue) almost-closed. This rapid opening & closing movement is apparently correlated with rhythm of call-trill. The faster the call, the faster the movement.

Leaving 6:17

Tuesday, Nov. 15, 1955
Chincha Isl

7:40 Large colony again, but moved blind Buck panicky,

Unca, Nov 15, 1955, I.

✱ Comm. Area. Begin 8:15. St. O+G - LCN - LCN. F. Aug U - St. Gost. St St. U.U. Aug U. - Gost - Gost. St. St. St Gost - Gost Gost O+G after attack St. Fight. St. St. - Gost - Gost - Gost. U - Gost. Aug U. LCN St. LCN - LCN - LCN LCN - LCN St St. St - Gost St. Aug U. St. - Gost. St OG - Gost. Gost Gost. Fight. F+Ht. St St. St. Gost. St Gost - U+HF - St Gost

▲ St. St. St. St. U+G. O. O. St - Gost. G. St St. St U+G OO St+G St. Gost.

◎ M.C. ♂ land, then ♀ ♂ St - Gost - Aug U - HF ♀ Aug U - HF. Then ♂ walks toward ♀, mutual Ht performance, ♂ - ♀ - ♂ - ♀ - ♂ - ♀ - St. ♂ stand in ♀ ♀ Aug U + HF ♂ flies off

I have seen several birds land with fish in this communal area, stand in FO, get no response from any body, and fly off very shortly.

There is also quite a lot of strutting, sexual behavior going on from time to time. Mostly ♀'s soliciting. Getting usual ♂ response, mostly Aug. U.

Very dull in this communal area 8:155.

◎ M.C. ♀ joins ♂ ♂ does Gost - Gost - Gost - Gost - F+Ht - Aug U ♀ does U - Gost - Aug - U Then all fly off in Silent Panic.

Not only are displays by birds on ground toward flying birds relatively rare in this species, but they also only occur when the flying bird is very close to the bird on ground. (This helps to explain why it is predominant in my counts). The only possible exception is provided by some of the LCN screaming on alighting after Silent Panics, and I can't tell what is screaming at what then.

Emphasize again, this species has an incredible number of Silent Panics — many more than any gull I have worked on. And yet it is not very shy otherwise.

"♂" wandering from place to place in this communal area. Low fun land a three detached yrs. Each time just stood in FO - F. They have done a few brief bouts of "silent F+Ht" toward neighbor

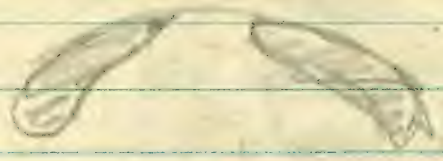
Mica, Nov. 15, 1955, II.

One of her visits was to a spot right next to a copulating pair, whom the fish-carrying "♂" faced throughout his visit. 7:25.

♂ M.C. Pair faced M.C. of mutual Agg.-V + HF-Agg.V. Then face each other in F. ♂ does brief F + Clt. Up in Agg.V again walking normal ♀ begins HB in H+R. ♂ stands in more or less extreme "aux V", (almost an O — obviously just an int. mov. to fly up) Does two HB movements from this posture. Then walks around in Agg.V again. ♀ continues soliciting ♂ approaches her again. Stands right beside her. Looks as if about to mount at any moment, and then both fly off in silent panic.

Because of the tendency to hold out caps a trifle, or, rather, hold them on such a way that they are visible, as an int. mov. of flying, it is usually or often impossible to distinguish between the "Alert Posture" and the Aux.V. Thus the Aux.V. appears to be relatively little utilized in this species.

A word about "cap-raising" in general. It is present in all the basic + sexual postures of this species — to a greater or lesser extent. Perhaps most frequently conspicuous in Agg.V. But never as conspicuous as in nonagills — never a "shield effect" come to. At most, like this:



and this is relatively rare too →

Usually

Thus, it might be better to say that the carpal joints are held out a little, and lowered a little. (See the drawing I did the other day of the usual side view.)

There has been, on the average, about 2 panics every 5 minutes — all morning long.

* 9:7mm Mica

V+G-O+G-V+G Gort-V. Gort / Aux V+G-V-Agg.V-Gort-V O+G-LN-LCN. Agg.V after attack. St. Agg.V-Gort [illegible] Gort Gort Gort, before attacks. Agg.V-Gort-Agg.V, St-Gort-St St-Gort-St-Gort-St-Gort-Gort St-Gort-St. [illegible] before attacks.

nica, Nov. 15, 1955, III.

before attack - Gort. LCN - LCN - LCN - Gort. St & G between attacks - St after attacks. - - - - - - - - - V+G - Gort - V+G - Gort - - - St Gort. Gort - V - Aux V. Gort - - Gort. OtG before attack - OtG after attack - - - - - - - - - St - Gort. OtG before attack - St after attack - St. St - Gort - Gort. St. - after being attacked -, Gort. St - Gort - V+G - St - F. Gort - V+G - V+G - St V+G. Gort - after attack - OtG - LCN - OtG - - - - - Gort. LCN. St+G after attack.

One very serious problem has just occurred to me!!! One sees a great many Gorts and St's that appear to be extremely low intensity. Just as low as you can get. Then what about the V complex ??? I think that relatively few of the V's look as low intensity as many St's and Gort's. Is this because I can't recognize the lowest intensity forms of V ??? Equally important, is it possible that many, or even all of the V's contain a sexual element ???

All sorts of problems. St, for instance, is often obviously related to V's. Not infrequently incorporated into V-parading. Yet it is "aux V" that seems to be the strongest "pre-escape" pattern. Similarly Gort is obviously related to Agg V., but it is the agg V that is the strongest "pre-attack" pattern.

Granted that some of my Gorts are probably autostimulatory preening, etc., reactions, most of them are certainly hostile. 10:17

It is usually orientated slim toward the bird for which it is intended. This is particularly true if it is intended for the mate.

Still dreadfully dull 10:45.

Common area

V before attack - V after attack - V+G before attack St. St V - - - - - - Gort - - - - F+Gt V+G - OtG - LCN - LCN - LCN - V+G - OtG - LCN - LCN - OtG. St between attacks - St after attacks F+Gt - - V+G - Gort - - - - V. - OtG before attack - Gort after attacks - St Gort - after attacks + V+HF - - Gort - - Gort Gort Aux. V. St. Gort - V. St. St. Gort St St - Gort. V - HF - V. St - Gort - V Aux. V Agg V - Gort - Gort - Gort - Gort - Gort

LCN - OtG - LCN - OtG. OtG - LCN - OtG - LCN - OtG - LCN before attacks - St after attacks

WCA, Nov. 15, 1955, IV

Perhaps my theories about pair-formation need a little revision. Just saw another case much like yesterday afternoon "♂" with fish, flew from communal area to communal area, visited 3 of them, the extremes being more than 500 yds apart. At each place spent most of his time just sitting in FO. Several times attacked, probably by a neighboring territory owner. Also, however, displayed with at least two other birds. Usual type of display "♂" in F+Clt, apparently silent; "♀" in F+Clt, uttering audible in at least one case.

Faint form of Clt is just a rattle - utterly impossible to transcribe. Flight, slower, might be haunted "tikatikatikatika... ....." at times.

Notice several aerial ft's with G — by pursuers in Mott Flight. Also now ft's — Mott Flight by birds escaping in panic.

Leaving 12:15. Back 1:55

colnl area

ft ✓ F+Clt - Gost ✓ ft Gost ✓ ft - Gost ✓ ft - Gost ✓ ft, F+Clt ✓ Clt Agg. V - Agg. V - V. ICN - O+G. C+G O+G before escape ●. ft. Gost after attack. ft. ft - Gost. Gost Gost. Gost + G between attacks. ft. ft. C+G O+G - ICN - ICN ●, Gost - ● - ● - Gost - Gost. ft after attack - Gost

O+G - ICN - ICN - O+G. (These last 2 episodes have been directed toward a Franklin's Gull and a Belcher's Gull, respectively) ICN - ICN - ICN - ICN.

Notice one pair in communal area, probably not paired long. ♂ with fish, does "silent" F+Clt toward ♀. She does audible F+Clt to him. Then ♀ walks away in V, with agg. V for a few seconds, then with aux. V for the next few seconds, etc. (Combined with HF (in agg. V) and ft. Notice that her ft's were definitely with them away from ♂, (this was quite clear & unmistakable). Then ♀ relaxes, starts to preen. ♂ stands in FO when she left him. Finally he flies to her, another F+Clt mutual performance, and they disappear into hollow. Can't see them there, until ♂ mounts ♀ for a copulation attempt, stands on her back, enormous wing-waving, and swallows fish. Then real cop attempt. Post-copulatory mutual Agg. V (+ slight HF) — Gost —

UNCA, Nov 15, 1955, V

- V then relax temporarily 2:40.

It is noticeable that men in the communal areas a lot of attacks are launched from unritualized gestures. No more preparation than fixating the opponent and (possibly) stretching head & neck toward him slightly.

Possible beginning of nest-site selection. ♂ lands a foot or 2 ft from ♀, on rock in border area between colony & colony area. ♂ does ft & HF – Agg V – walks to ♀ in Agg V – ♂ at her & walks on in Agg. V. ♀ did a ft gesture & landed, but the rest of the time she just looks at the male in a thoroughly disinterested fashion. Neither alarmed nor excited in any way. ♂ continues walking in Agg V, goes to one potential site, looks at it (mostly in V, an occasional F int. mov.), flies to another site. ♀ flies to him, lands about 6" behind him, does nothing. ♂ flies to 3rd site. Then ♀ is involved in some general disturbance. Both ♂ & ♀ fly off.

Just saw another solitary ♂, with fresh, in color area. In FO, goes to nest-site in F, F+Ct in hole, out, off on circular flight, back, swallows fish, off again disappears 3:06.

When a ♂ does transfer a fish to a ♀, it is certainly in F posture. Possibly preceded by single or mutual Ct, gaining in low ⊕ and F, and ♀ soliciting in H+R with HB.

Head is most "rounded" when relaxed

Sometimes, LCN is given by bird flying up. Presumably aggressive or "high intensity." Then brief LCN – it has just struck me – sounds remarkably like the brief LCN sometimes given by Bonaparte's or the Gray-headed Gull before flying up.

After circular flight, both birds fly away in Moth flight, with a rather peculiar, possibly slightly ritualized posture which might perhaps be clustering ritualized (current page). Is it possible that this posture is always present in Moth flight & isn't ???

Mica, Nov. 15, 1955, VI.

Not too unlike aerial fish-carrying posture. Probably ♂, (these birds were more aggressive than ♀ fighting tooth & nail — and notice the G)

The under-side of wing is silver, but darker near tips of primaries.

Have been watching pairing. Much as before, but a few minor points to add. Have seen ♀ trying to get fish, HB in perfect F. Have seen fish-carrying ♂ fly me from spot to spot on rocks in communal area, displaying with ♀ at one place (usual F+Clt burrows), then ♀ flew to next site, ♂ flew to a new other spots in communal area and rat in FO, then ♂ flew to next site where ♀ was and displayed with her there. Both flew to communal rocks (♂ still carrying fish), and displayed again. Have also seen ♂, in plain FO without a trace of display, watching for ♀ attempts to take fish, (the ♀ alternately her attempts with bouts of F+Clt

Not at all sure of "usual" orientation of ♂. Stupid of me to have missed it. Must check.

Watching ♂ with fish in F and FO, repeatedly try to approach a ♀ she was in H+R and HB steadily. But each time the ♂ came close, she attacked him. (These were obvious not attempts to seize fish). This happened 7 times!! Finally the ♀ just came out of her H+R, and stopped HB momentarily after attack. Since, however, she did violent F+Clt, loud Alinay, went back to H+R+HB very quickly. Then all swept away in silent flame 4:20

* Comm area

St after attack. O+G. V after attack - Gort St after attack O - ✓ St - Gort St V+B after escape St before attack - V after attack - V before attack - St after attack - Gort - St before attack F+Clt between attacks O O Gort O before attack. F+Clt F+Clt LCN-O+G-LCN-O+G-LCN-O+G LCN-O+G-LCN O+G-LCN-O+G LCN-LCN-O+G-LCN LCN-LCN O+G-V+G V+G LCN before attack O+G before attack O+G before attack LCN before attack —

Lica, Nov. 15, 1955, VII

The most extreme long-necked curv. V's, and O+G's, and V+G's, cannot exaggerate the length of the neck. Incredibly long & thin the birds look.

About orientation of ft — this is obviously extremely variable. Many birds landing in communal area usually do ft on alighting, without any reorientation. Most of them are slight, but an appreciable number are of the relatively short-necked, very "S-bent-neck" type. Those ft that appear to be "silent" ●'s, are oriented much like ● itself, i.e. usually re-oriented to face partner, i.e. reveal chin & yellow-under back, etc. During some V-parading of mates, some birds with extremely elongate necks, will give ft with back of head toward partner, i.e. hiding most of face. These birds appear to be somewhat "alarmed", in curv V before ft, but this interpretation, of course, depends upon exactly what type of curv. V they were in, and the interpretation of that. Their ft tends to be of the long + straight-necked variety.

In the case of one ft (relatively long + straight) before attacks, the aggressive bird was facing away from the opponent, i.e. hiding face and revealing black cap, before the attacks 5:00

ft's after attacks tend, I think, to be of the relatively short-necked S-bent type. They are certainly oriented like the other ft's on landing.

Heard ♂ make regular, but muffled, Chit sound while doing F+chit with fish!!!

♂ with fish flies to ♀ who is HB in H+R from another ♂ in F. The new arrival also stands in F, walks cautiously to ♀, back, forward, etc. ♀ stops begging. ♀ & first ♂ fly off. Second ♂ stands in FO a moment, then flies off too. Another example of the attractive power of a soliciting ♀!!!

There is a tendency for ♂'s in FO with fish, when standing without a ♀, to give quite a number of general shakes, (i.e. ruffle all the plumage, and then briefly shuffle wings) This is so frequent

inca, Nov. 15, 1955, VIII.

that it may well be significant 5:15.

Have noted several ♂'s with fish, while more or less displaying with one ♀, to be approached by "admirers". These latter may even go so far as F + Cht with him, but this is as far as the "flirtation" gets.

Mated pairs, incidentally, resenting an intrusion, will also often F + Cht at a ♂ in F or FO carrying fish.

I think that any "weak" or "relaxed" St tends, if re-orientated at all, to be turned chin toward the opponent or partner.

Much "nervous" preening after V type MC and in the intervals of V-parading.

* Comm. area V - ♂+♀ after attack. LCN. Gost - St. St - Gost - St - Gost - St - Gost - St - Gost. St. F + Cht. Gost Gost - Gost - F - Gost Agg V. Agg V, F + Cht - Gost. Gost Agg V. V - Gost

During V-parading in general, there is a strong tendency to present back of head to partner. Birds often stand in agg. V facing away from another. + all the slight twisting movements, HF, & St.

Must note that this H pattern of inca is more ritualized than that of other birds for several reasons. 1) not only is there an accompanying R, but also 2) the general tilt of the body, tail upwards and head low, and 3) the "F-like" protruding "bosom". The only time I have seen anything like H of gulls is momentarily during the assumption of the extreme H & R 5:45

Another case of ♀ who has been sitting beside a ♂ in FO with fish, flies off in "Moth flight" with St.

Leaving 5:55

Wednesday,
November 16, 1955,
Christina Sun

Back to blind, same place as yesterday, 7:05 a.m., have to get in by myself.

✱ Commun area. St-St-Gost. F+Cht Gost. Gost-V-O+G. St. St. St. St+Gofer attack-Gost. St-Gost-V+G before attack-St after attack. Gost-St. St. Gost. Gost-St. LCN-O+G-V+G-V and V St. O+G-Gost O+G-LCN.

Should emphasize that the "F" of F+Cht in purely hostile circumstances is anything from a very low ● ⟶ to the extreme form of L ⟶ to a "real" extreme F like the B.L.G. ⟶ the F of F+Cht in semi-sexual circumstances (e.g. fish-carrying), by contrast, is almost always an extreme real F

Noted earlier, on top of cliff, pair "V-parading", etc., etc., on roof of, and inside, abandoned shed. Could follow this, but both birds then flew off in similar flight with St. and trace of Moth flight. This is interesting, but it probably actually occurs not infrequently

▲ St-Gost. St. St. St. St. St-Gost. O+G St. St. St-Gost-St-O+G-St

Quite as dull as yesterday in the communal area 8:00. Almost as many Silent Panics in the colony

✱ Comm area. Aux V after escape. Aux V during escape. Aux V before escape. ●-Gost ●-● ●-●-●-Gost St-Gost Gost. Gost after attack. V+G before attack-St after attack. St after escape-Gost. Gost. O+G-V+G-Gost-V+G-O+G-V+G ●-●-●-●-●-● V+G-O+G-V+G F+Cht. F+Cht-●-F+Cht-●-F+Cht-● F+Cht-●-F+Cht-●-F+Cht.

Confirm LCN is only note heard during aerial fights. Even then it is brief and relatively infrequent

Noted one "pair" in which the ♀ was eager and the ♂ certainly not ♂ F+Cht at ♀ almost constantly, seasonal birds, she let ●

Uca, Nov. 14, 1955, II.

The ♀ in constant V-parading, in more or less circular form, about 6" to 1 ft from the ♂ Aux. V - Agg. V - HF - Agg. V (+ slight bend or tilt) - Aux V - a brief little "escape flight" (no more than 6") - St - Gort - V - etc. etc. ♂ finally attacked ♀, (attack from F + Ult), she flew off a few feet, and everything has now died down temporarily. 8:30.

This Aux V - very brief "escape flight" - St - Gort - V Aux - uers appears to be very common during V-parading.

Have noticed again & again how unmistakable frightened birds during V-parading St with back of head toward partner. This hides part of the "threat facial pattern", but much less efficiently than such patterns as Aux V facing away from partner or HF. Does this suggest that St with nape toward partner is a presentation of the black cap? And is black relatively intimidating in this species? If so, we have nice case. A "frightened" bird, while expressing its considerable alarm, is simultaneously presenting enough in the way of intimidating stimuli to prevent attack. Later in the cycle, when the bird is no longer so "frightened", it can afford (at least occasionally) to St with chin toward partner. This latter performance might be appeasement.

* Contin. area

● - ● - ● - ● - ● - Gort, ● - ● - ● - ● - ● - Gort ● after attack Gort after attack LCN St - Gort F + Ult - ● St after attack St - Gort Gort Gort - Agg V before attack - St + G after attack V + G. V + G before attack - Gort after attack - St - Gort V + G before attack O + G + HF after attack ● - ● - ● - ● - Gort. St + G - HF - St + G before attack - St after attack. Aux. V - LCN - LCN - LCN - LCN - LCN before attack - St + G after attack, ● - ● - Gort Gort Gort - Gort Gort Gort V + G between attacks St + G after escape Gort Agg. V + G

V-parading not infrequently accompanied by Gorts. Usually annoyed from Agg. V. Usually appears to be int. mvs. of ●.

Correction of something I said a few days ago: I have seen attacks apparently redirected on neighbors and strangers apparently as a result of hostility between mates during V-parading, often

Inca, Nov. 16, 1955, III.

preceded by "Aux V + G". But relatively rare and always or almost always difficult to distinguish. This is because these attacks are or usually occur in certain circumstances. The "scapegoat" is usually either a new bird who has landed nearby, or a neighbor who is displaying. I.E. these are not pure "scapegoats", they have given cause for offense. I.E. these redirection attacks are always or usually not pure redirection. 9:10

* Comm. area ending 9:30.

Aggr V + G. Aux V. before escape. St after attack. Gort after being attacked. LCN. LCN. OVG before attack. LCN before attack. LCN before attack – LCN after attack. LCN – LCN – LCN. LCN – LCN – Gort + G – LCN – Gort + G – LCN – LCN – OVG. Gort. St. Gort. St + St. St + G after attack. V + G before attack. St – Gort. Gort after attack – Gort after attack.

Again notice how the juveniles or immatures tend to be relatively more aggressive than adults on the communal area courts.

Have heard one almost-adult quite complete adult LCN pattern. Here almost adults, and there can't have been more than 2 or 3 of them, are the only immatures included in my counts. They all had black bills, yellow wattles, and white mustaches.

Aerial LCN's, again by both birds during an aerial fight. They both seemed to be aggressive, both trying to attack simultaneously.

Mottled St + St must be at least as common after vocal attacks as St is after tonic vocal attacks.

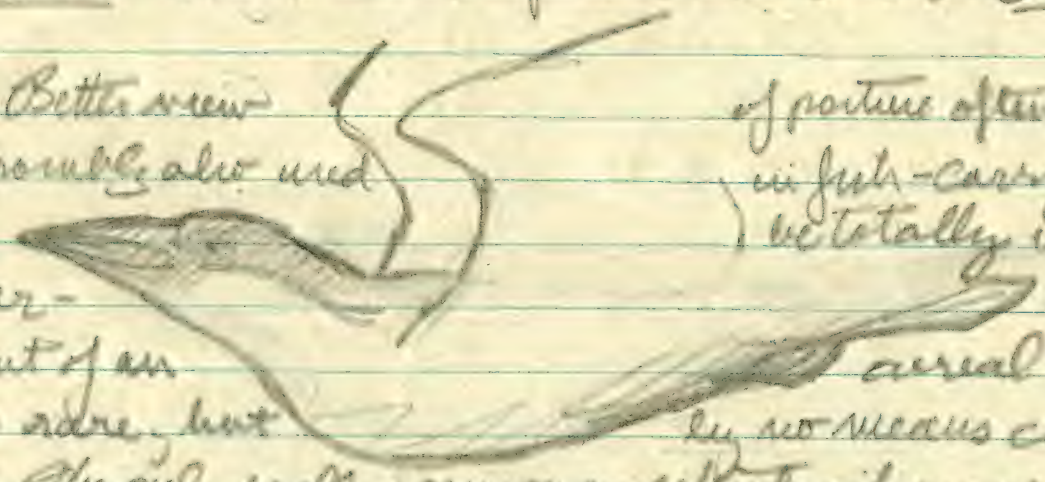
Emphasis. Tongue almost never shows in any of the G postures, wide open or slightly open. And the bills are very rarely widely open during G. When wide open there is almost always some LCN, however faint.

A fuel-carrying Cardinal looks just like an inferior product of the Cardinal's art. Badly stuffed. It's the combination of the chromatic posture & the swollen throat.

V. Parade including a burst of LCN's by ♂

Uica, Nov. 16, 1955, IV

** comm area (10:40) O+G-LCN-LCN-LCN-O+G. LCN-LCN-LCN-V+G. V+G O+G. LCN-LCN-LCN-O+G. LCN-LCN. LCN-LCN-V+G. LCN-LCN. V+G. V+G before attack - Gt after attack. Gt between attack - Gt after attack - V+G. O-O-O-Gt - V+G. O-O. Other attack -



Better view (and possibly also and well it is pertinent of an means adre, but of posture often seen with G in air, in fish-carrying) This may be totally unnatural, but hops slightly semi-aerial O. It is by no means common.

The only really common & ritualized movements & postures in air, in fact, are the Moth Flight and Gt. Can confirm this again, as I have been looking specially for others.

It is possible that something like a "hanging" posture, with LCN or G, sometimes occurs over colony, but it is certainly rare and unritualized. And I have seen nothing here today like a "Butterfly flight"

Must emphasize how frequently one or both birds fly away in extreme Gt & Moth Flight after aerial flight. The fact that both do so so frequently suggests that Moth Flight & Gt is far from "almost-pure" escape — must contain an appreciable attack element.

Difficult that there is a definite tendency, whenever Moth Flight with Gt is prolonged, for the wing-beats to become of smaller & smaller amplitude, while losing none of their speed, until the Moth Flight to develop into Glide. This appearance might be deceptive, however; a true Glide might just be normal part of turning after having flown down the slope on which the colony is located.

** comm. area O-O. Gt after attack. Gt before attack - Gt after attack. V+G. Gt. LCN-V+G-O+G-V+G. Gt. V+G before attack - Gt+G after attack - Gt

There has been an almost-adult bird near my blind, (it has red bill & feet, yellow wattle, & white plumes — but brown plumage), in the communal area. For at least 10 minutes it appeared to be defending a territory — a large flat rock. Chased all the birds that

Wed, Nov. 16, 1955, V.

landed on that rock. Did this with a lot of LEN's, many before attack. Did nothing else. No signs of displays toward flying birds. Had an "admirer", in complete juvenal plumage, nearby — who kept flying to different rocks around him, standing in curious mode of the time, and made several very brief and tentative attempts to approach the aggressive almost-adult. Never dared through.

When the aggressive bird relaxes, flies to adjacent area, preens, flies away. 11:30.

I can't help but feel that this sort of thing might be the first approach to the first pairing.

(Incidentally, I didn't include the LEN's, or any of the behavior of this aggressive almost-adult in my counts)

* comm. area — st-Gost-●-gost. gost. st-Gost. gost. st during retreat

Leaving 11:50.

Have taken every opportunity, the last 3 days or so, to discover the status of Clit as an aerial call. I know that my notes of the first few days refer to it as an aerial call, but I had begun to doubt this. And my conclusions are as follows.

It is really semi-aerial or pseudo-aerial. Sometimes given, in quite typical form, by birds flying up (even during frenzied Panics) and landing near others. Still rare in these circumstances. Even rarer, I think, as a pattern by really flying birds — but I have heard a perfectly typical Clit call given by a bird circling near me (perhaps disturbed by me)

Much commoner is the "mottered" Clit given by birds flying up in group during frenzied Panic. It is almost inevitable then. Some of these mottered versions sound like 3 or 4 normal syllables — but weaker. Others sound like 3 or 4 normal syllables, ended suddenly with a particularly loud & explosive syllable. A few rare calls contain only 1, 2, or 3 syllables; and some of these are sometimes slightly reminiscent of alc of gulls. Sometimes, again extremely rarely, just one sharp note.

1:15 p.m. Have just taken a small walk to the small

Inca, Nov. 16, 1955, XI

alone, and the communal area nearly. Not a sign of the birds, although boobies, etc., sitting quite undisturbed. This makes it seem more likely than ever that this group of birds is in the "colony occupying" stage, and makes it even more remarkable that I didn't see any signs of fish flights the day before yesterday.

pipiscau

Wednesday,
November 16, 1955,
Christian Fiu

Just a word about the behavior of the gravid Franklin's Gulls, who, with several immatures & one or more adults, are scattered, in ones and twos usually, all around the shores of these islands.

Quite inactive — as might be expected

Every time they do in air give brief, small, single "reeds" "broken" "gravel" LCN's. "Kre-ee-e" or "Kee-ee-ar" sort of business — quite brief. Sounds just like the birds in the Fabred Delta

Usually quite silent enormous Saw-billed Gull in the midst of an Inca colony, disturbing all the inhabitants, and provoking bursts of LCN's by all the nearby birds. This gravid animal back with a burst of LCN's in video-relayed picture, with slight trace of R

Monday
November 14, 1955
Chinicha Isr

Notes on Larus belcheri

There have been a number of these birds around from time to time during the last few days, and I have been able to watch them occasionally in the intervals between watching Juca Jens

Pairs and single birds seem to have "stations" favorite rocks where the birds can be seen most of the time. These "stations" are very far apart — nothing like a colony — but there is occasional visiting back and forth. I haven't been able to follow this at all, but some of it looks like "pairing", like the Herring Gulls in Virginia

Series of MC's. ① ♂ on ground, does HD-O as ♀ approaches, then V-HF-V-HF-V-HF-V-V-gort-V-gort-V-gort-V. ♀ does V-HF-V-HF-V-HF-V-gort-V-gort-V-gort-V-gort-V. ② ♀ on ground, does HD-O before ♂ lands, then V+HF. ♂ does V+HF-HD-O. V+HF-V-gort-V-gort-V ③ ♂ joins ♀ Mutual V+HF

Some of these gorts are quite long-necked

Some notes on Long Call Note & Long Call

Voice is a particularly piercing high-pitched scream. This "piercingness" is particularly noticeable in the LCN. The LC is somewhat more melodious. Voice is less like Herring Gull — not hoarse like the Ring-bill

Belcher, Nov. 14, 1955, II

The usual sequence of the Trumpeting seems to be as follows: a few notes (usually 2), long-drawn & relatively soft, "Waaaaah Waaaah", are uttered in the HD posture. Then a series of harder, shorter notes (possibly beginning somewhat higher in pitch?) are given from O.

— roughly, considerable variation.

These O notes may be continued for a long time if a dispute with intruder is in progress; i.e. a very much longer series of notes may be uttered, each note much like an O note during usual Trumpeting, equally short but all about the same pitch.

The HD notes are very reminiscent of the M notes of other species. I have not, however, heard the M of this form.

The O posture itself is particularly reminiscent of the Herring Gull. (see photos of H.T.)


sometimes slightly more vertical

Correction - ALC is entirely hooded-gull-like, a "Kek" "Kek Kek" or "Kek Kek Kek"

Physical description. Looks black & white, not brown & grey. Bill looks heavy.


main color bright yellow, little real orange

Eyes dark. Looks small. Ring around the eye is largely feathered (white), but yellow visible at corners, (and a very thin line of yellow above eye).

corners of mouth, apparently same color as most of bill

Belcheri, Nov. 14, 1955, III.

This pattern of red & black on bill is extremely variable. May be absolutely different on the two sides of the bill of the same individual.

This definitely is a two-phase type Trumpeting Call. I have just heard one with 2 or 3 preliminary notes, (like those given from rear ♂ in Herring Gull), and then were uttered after the head went down in HD.

Have seen one bow T movement by ♂, and one by ♀. ♀'s was from H. formed a particularly high-pitched LCN.

MC ♀ joins ♂. Both V+HF. ♂ then a series of "gorts" (at least 5)

I think that this "gort" I have been recording in MC's may be something quite different. In ♂ of above pair, the last (at least) of the "gorts" appeared to be a feeding or (more probably) drinking reaction. Dipping bill in tray pool, swallowing something, when head & bill lifted.

MC. 5

Difficult. I no sooner write the above than I look up to see another MC. Don't know who joined who. Both birds HD-V-V+HF. Then ♂ walks away, pecks ground once, walks, does real Gort. (He appears to be quite relaxed during these PAG's & Gorts)

Another MC, the details of which I don't catch. Thus followed by downward Ch. by both, ♀ walks away in semi-U, does two real Gorts, with bill open, apparently silent. Then one ordinary Gort. Is this coincidence?

Another MC, the details of which didn't catch. ♀ walks away in slight ass-U, pecks ground, makes "swallowing" OCB movements after lifting head back to ass-U, although I could see she didn't pick up anything on ground.

Trumpeting Call is certainly the usual display by one mate on ground toward flying mate.

belchers

November 15, 1955,
Chinita Sur

Have seen 7 or 8 MC's since writing last — and the situation is beginning to resolve itself. "Typical" MC's can be described as follows. The bird on ground does HD-O before incoming bird lands, then both U+HF (all this U appears to be either "simple U" or "aux. U" — I have seen nothing like a very extreme agg. U or "aggressive head-set") There are two common variants to the process thus far. 1. The sitting bird doesn't bother to HD-O, so display is confined to U+HF 2. The landing bird does HD-O after landing, thus having the HD-O-U+HF mutual. What happens after this is more variable. Sometimes one or both birds will go straight into Choking. Sometimes one or both birds will perform one or more "simple" Gorts. The female of the pair I am watching is a "nervous" type. She comes out of Gort into aux U+HF each time, and then stands in aux. U until the next Gort. Sometimes one or both birds may peck at ground (to be followed by OCB "swallowing" motions after head is lifted), or actually drink water, or (possibly) pick something up off ground + eat it. All these downward movements of heads will be too common to be sheer coincidence or purely autochthonous. Particularly in view of the fact that Choking is so common in the same situation. (And this Choking occurs when there is no "third bird" present to complicate the situation).

Speaking of Choking in MC, it is often preceded by what appears to be "preliminary" displays in these circumstances. Sometimes bird M posturing. More often, bird in either Gort and/or U either opens bill (widely) and keeps it open, or opens & closes bill (open widely again) moderately slowly. The "preliminaries" to Ch sometimes occur without subsequent Ch.

I haven't managed to hear the sounds, (if any), accompanying Ch, M, and the other "prelims" to Ch.

HD-O is the common display given toward "strange" flying birds by birds on the ground (with or without mate present)

U, HD, O, and Ch all extremely common during violent dispute on ground. U, HD, and O all common before attack.

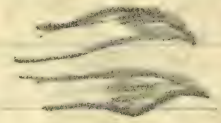
November 16,
1955,
Chinchiha Inn

Have had more opportunities to observe men of the same behavior

UHF by bird on ground toward flying mate about to land

Was able to watch a copulation attempt in considerable detail. ♀ FB in H found should really be transcribed as "Klioo", just like other Lowns quells. ♂ walked about Mostly in U. Once down in M posture (couldn't hear call, if any). Then stood in U, giving series of LCN rounds, relatively soft, (bill opening & closing visibly) Interspersed with series of downward movements, mostly feints, once drinking. Then mounted. Copulation like that of related species. Apparently a Cop Call — but couldn't hear sound — which means that it must have been very soft — much softer than either LCN or FB note. ♂'s bill semi-closed during Cop. Call

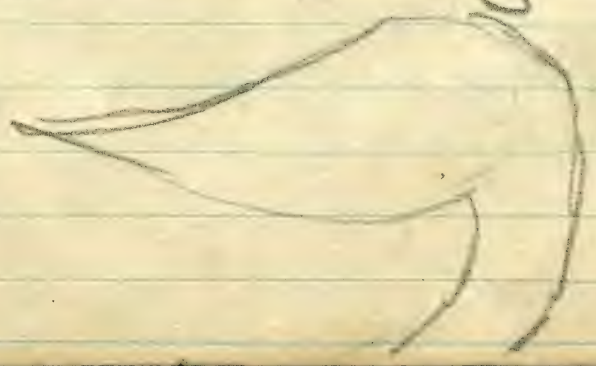
Post Cop display, mutual U+MF



The various downward movements, including PAG & "drinking", seem to take the place, in this species, of the Pr. movements of other species. At least in pairing & sexual situations

Relatively low-intensity HD's appear to be "rounded"

Higher intensity Lowns are apparently straighter.



Belchertown, Nov. 16, 1935, II.

Have again noticed the relatively great frequency of aerial LCN's. Almost constant when birds are flying near sitters

The fact that I have seen no aerial long call may be significant — in view of the frequency with which the birds utter series of loud, rapid, "close-together", LCN's, which appear to be high intensity reactions

Forgot to mention that, during the copulation cited above the ♂ uttered one FB note. This is the nearest thing I have seen to mutual FB

There are at least two pairs involved in proceedings in front of my blind. One pair is very legitimately paired — i.e. the ♂ attracted the ♀ twice after M.C.'s

Some of the "visiting" I have seen is apparently a case of an "invited" ♀ visiting a ♂. Unfortunately, however, things have always been complicated by the fact that the ♂'s "own" ♀ has always arrived very shortly after the visiting ♀, thus causing general confusion & disputing

Belcher

November 17, 1955, La Punta, Peru.

11:00 a.m. Have been watching a dispute between 2 ♂'s, which has lasted for well over a half hour. All very interesting.

General pace is very slow & cautious.

Much walking around in V, and semi-V. Some of the V's become quite extreme agg. V's. This species has an "aggressive head-set" like the Ring-bill but all the cases I have seen have been much less "extreme" in appearance. (This may be largely due to the fact that the head is never so "thin" toward the front part).

Much squinting during these V's and agg. V's. Certainly significant. One bird had his eyes almost completely closed when his opponent was standing almost beak to beak with him.

Constant approaching and retreating, but all very slow and relaxed.

Many HD-O's during this period. Birds usually facing one another or standing more or less parallel. Often →

A great deal of Gosts. Must have been close to a 100. Many, in fact most, of them did not develop into anything further. (See accompanying sketches for the great variety of Gosts postures.) Some Gosts, however, went smoothly into HD, usually after the bird had been standing in Gosts for several seconds, possibly even a minute. Some Gosts were alternated with other downward movements. One peck at ground & pulling of dried Ulva!! Several cases of putting bill into water and then shaking it!! May bring little bouts of Choking. Looked almost exactly like Herring Gull. Apparently accompanied by rhythmic call, but again I couldn't hear it. Some of the apparently low-intensity Ch, given from semi-V semi Ch posture, comme ça, were very reminiscent of regurge, bill opened widely momentarily. Some Choking given from sitting position; but most of it from standing position with knees bent.

Belchere, Nov. 17, 1955, II.

There was also a definite Squat pattern. Occurred at [illegible] times. Much like the Squat of the Ring-bill; but bill never pointed downward as strongly, pressed to breast, like it is in my drawing of the Ring-bill Squat. Squat one occurred as a definite response to a charge by the opponent. Appeared to stop the charge, which stopped dead.

One bird gave burst of 2 CN's from U posture, head inclined slightly downward. Bill opened widely with each note, closed or semi-closed between notes.

It was remarkable that there wasn't one actual blow delivered during this dispute. This, plus the remarkably slow tempo, might suggest that the dispute was low-intensity, but the "exaggerated caution" of the birds makes me think, on the contrary, that it was quite high intensity indeed.

The slow tempo, of course, is also reminiscent of the Herring Gull.

Notes on the form of the HD performance. Both phases often quite short-necked. Makes them look comparatively little intimidating. I think the rounder forms of the HD tend to be the shortest-necked, and this may be further support for the theory that these are the lowest intensity forms of the pattern. Have seen nothing like the most extreme forms of HD in the Ring-bill, (i.e. head & bill are never far back toward the tail). Again noticed some variability in angle of O. But always comparatively low. Sometimes, particularly when directed toward a flying bird, the angle is just moderately high, ↗, and then gets somewhat lower as call progresses, until like →.

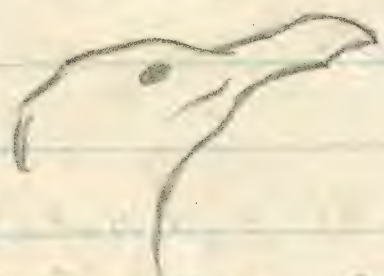
One of the ♂'s was visited by a ♀, apparently his mate, during the course of the above fracas. Again HD-O before she came in. Then mutual U + HF - U + all sorts of Gorts as M.C. ♀ in definite aux. U. ♂ not too aux., but definitely not very agg. by the standards of other species. Noticed, particularly in the case of the ♀, how aux. U is very long-necked, and very thin, especially toward upper part of neck. Gives peculiar effect in contrast to short, chunky, body. Sort of like the neck of a Coscoroba attached to a round black blob.

Belcheri, Nov. 17, 1955, III.

This ♀ was somewhat involved in the dispute between the 2 ♂'s, and an interesting case of redirection appeared. Some of the V's of the pair were done facing one another when the other ♂ approached them. And, more important, the mated ♂ & ♀ both performed redirected HD-O and Ch facing one another when the other ♂ approached. Quite clear.

3:50 p.m. More of the same sort of thing going on.

Notice that upward inclination of head during Aux. V is quite very strongly marked — at least sometimes



Have just seen ♂ regurge (egg) to feed ♀. ♀ begged first. Whole procedure quite like Herring Gull. Couldn't hear any M.

It is obvious, incidentally, that this species doesn't give M as frequently as the Herring Gull. Almost certainly doesn't give it at all in aer.

There is no doubt but that a single ♂ and a mated pair are maintaining territories here. At least — maintaining them from time to time. Spending much of their day away from here; just visiting occasionally.

The inside of the mouth has been far from brilliant orange in the examples I have seen. Most of it is just about like the outside of the bill, i.e. a sick yellow, just slightly tinged with orange. When the mouth is open, however, the corners are definitely more orange than most of the rest.

Have seen several very short-vertical Obliques

Agg. V (looking very low-intensity) before attack on Gray Gull

belcheri, Nov. 17, 1955, IV,

Agg V (Cooling, very low-intensity) before attack – then G during flying attack, just before the moment of impact – when attacking a juv. belcheri.

Yes! These birds are definitely completely territorial.

One of the Squats I have seen could be called a Freeze

G during attack on Gray Gulls. This appears to be unritualized

Feeding 5:40.

add. note Nov. 25, 1955 I don't remember ever hearing a Landing call by a Belcher's Gull.

Friday, Nov. 18, 1955, La Pantilla

## Larocephalus

Same place as yesterday when a pair of Gray-headed Gulls land. One is immature, the other is adult (perhaps 2nd year, completely adult, except for a few dark marks on tertials, which may be signs of youth)

There was a dispute between these two birds when they first landed; the adult did not care to be approached by the immature. I didn't catch the best part of this dispute, but the following points are certain. Adult uttered long LCN notes, "Kaaaaa Kaaaaa Kaaaaa ....", very buzzy or rasping, no effect, no twang. From O, which looked about as much like Hartlaub's Gull as anything. A slight tendency for succeeding LCN's to get deeper in pitch, but there were never more than 3-4 (possibly) 5 of them, no real Long Call effect. This followed by silent F, very short-necked. This F with R, (but R was possibly due to wind – although I rather doubt it)

The immature was silent during this dispute. Flew away. Landed. Later uttered 3 or 4 single LCN's. There was a triple unexpected, a rather clear "Kiow" sort of thing, i.e. more like the Laughing Gull LCN's than are the LCN's of the adult

Note that dark red ring around eye is quite conspicuous in adult. Adds to the "staring", hypnotic, effect.

The usual Alert Posture is present

belcheri

Nov. 18, 1955,
La Pintilla

Have definitely seen HD-O introduced by semi-O & 1 or 2 introductory LCN notes. Have seen this twice, but it is still obviously extremely rare.

Sometimes three full (i.e. long) notes during the HD. Have also noted that, while the O phase can be much prolonged during disputes, the HD phase apparently is not.

belcheri

Nov. 19, 1955, La Pintilla

Notice that much of the Ch is given from postures apparently identical with Goat postures. Low-one sequence Squat (head as in Age V) — Ch.

Correction — of a sort. I haven't seen any Ch as long-necked as my long-necked drawings of Goats (which may be too exaggerated anyhow). At high intensities legs become flexed, (but bird doesn't seem to sit during "pure" Ch), and belly feathers become conspicuously more fluffed or ruffled.

Have seen Squat + Freeze follow Ch immediately.

Choking with bill definitely closed, (not too "swollen" an effect around lower jaw). Birds not far away — and little wind — and yet I still didn't hear any sound!

One wonders if the reduction in number & variety of vocalizations, apparent in both this species and urica, might be connected with the constant pounding of surf in their breeding environment ???

Nov 19, 1955,
La Pintilla

General note on distribution. The same species here now as when I arrived, i.e. belcheri, modestus, cirrocephalus, pipixcan and a small tern, probably lorata.

belcheri

Nov. 20, 1955,
300, Lima.

There are three juvenal Belcher's Gulls here. Unlike the birds juvenals observed in the wild, they are very active. Mostly disputing among themselves over food. A few disputes with a Gray Gull (see below). They showed the following patterns:

The usual alert posture. This seemed to grade into a posture like usual adult U (i.e. not very "aggressive"), except that the carpal joints were not raised or lifted at all (remained invisible in fact). This appeared to be quite clear, occurring during disputes, but relatively rare, (and, of course, it is far from easy to distinguish between an alert posture and an U, when the latter is not accompanied by carpi-raising).

G during attack, but, more important, definite G by bird during aggressive rush or advance without actual attack.

A whole host of L.C. and LCN patterns.

Among the LCN's were a few that sounded like the "usual" juvenal land LCN's, i.e. thin & reedy.

The usual LCN's, however, sounded just like the adult AlC's of "typical Larus" gulls, "ha ha ha ha" or "ha ha ha ha ha", quite unlike the AlC's of adult belcheri heard in the wild. This is quite definite, heard it repeatedly in all 3 birds. Given from usual LCN postures,

without any raising of carpal joints. Given by some birds during retreat, but more frequently by an aggressive bird advancing to attack. (This would seem to suggest that the AlC of "typical Larus" gulls has been derived from an originally more aggressive pattern of juveniles. It is noticeable, incidentally, that this polysyllabic AlC sometimes appears to be an exaggeration of the "usual" juv. LCN, i.e. an accentuation of the "reedy" or "rattling" quality. Suggests also that it is a burst of AlC syllables,

i.e. "ha ha ha ha", etc, that is equivalent to a single LCN. Doesn't this confirm the conclusions that I reached after studying juveniles at Delta?)

These birds also gave complete Trumpeting Call performances HD-O. Both postures exactly like those of adults, except for the fact, again, that the caps were not raised at all. The notes themselves were much like those of adults, except that they were "hoarser", i.e. reminiscent of the Ring-bill in quality of tone. This performance was given repeatedly, at long intervals, whenever a particularly bitter dispute arose.

These birds also had an H posture — just like that of the Herring Gull. A prelude or low-intensity form of "begging".

"Begging" itself relatively common. Certainly food-begging. In H. found the usual "bleo" type; I think it was just the same as that of the adults. Relatively slight HT.

Very few Gorts, if any. No sign of Choking.

I must add, before I forget, that the primaries of these birds had been clipped. Half way or less. I don't think that this is the explanation of the lack of cap-raising — for several reasons. The birds could, and did, fly a few feet in a low outward flight and similar clipping did not affect the cap-raising of the Andean Gull in the same enclosure.

November 20, 1955,
Zoo, Lima

dominicanus

Also watched an adult of this species. In bad condition, but nuptial plumage, and gave several Trumpeting Call performances HD-O; with postures & voice similar or identical to those of the Herring Gull

## inca

November 20, 1955,
Zoo, Lima.

Had a cageful of these birds at zoo. Mostly adults, but a few young birds too. Noticed one pair of young, younger than the "almost adult" noted before, i.e. moustache almost pure grey; the ♀ of which was doing HT in H+R, just like adults, same sound.

November 20, 1955,
Zoo, Lima.

## modestus.

One of these birds. Probably young, but in almost complete adult plumage, with only a very slight trace of the white nuptial hood. Did a lot of disputing with the Belcher's Gulls, always the aggressor.

Did several Long Calls, which I didn't see too awfully well, but did manage to catch a few points. Generally like those observed at Salinas. Begun very high, with rapid notes. These might be transcribed as "Tukatukatuka....", but definitely not a rapid rattle like that of fuliginosus. Then followed by "real" Long Call notes, descending in pitch, as posture became gradually lower. Sometimes this alone. Sometimes included into real L, but this was "weak" looking, as before. Certainly much less conspicuous than the L's of the Laughing Gull or Franklin's Gull. Once this was followed by T with T note.

Once saw bird go up into high O, open and shut bill rapidly, as during the "Tukatukatuka...." call; but without uttering a sound. This was presumably low-intensity.

Occasional adult LCN from oblique posture

I don't think that I can tell a single T note from a single LCN

Once or twice saw T from H. Presumably begging for food

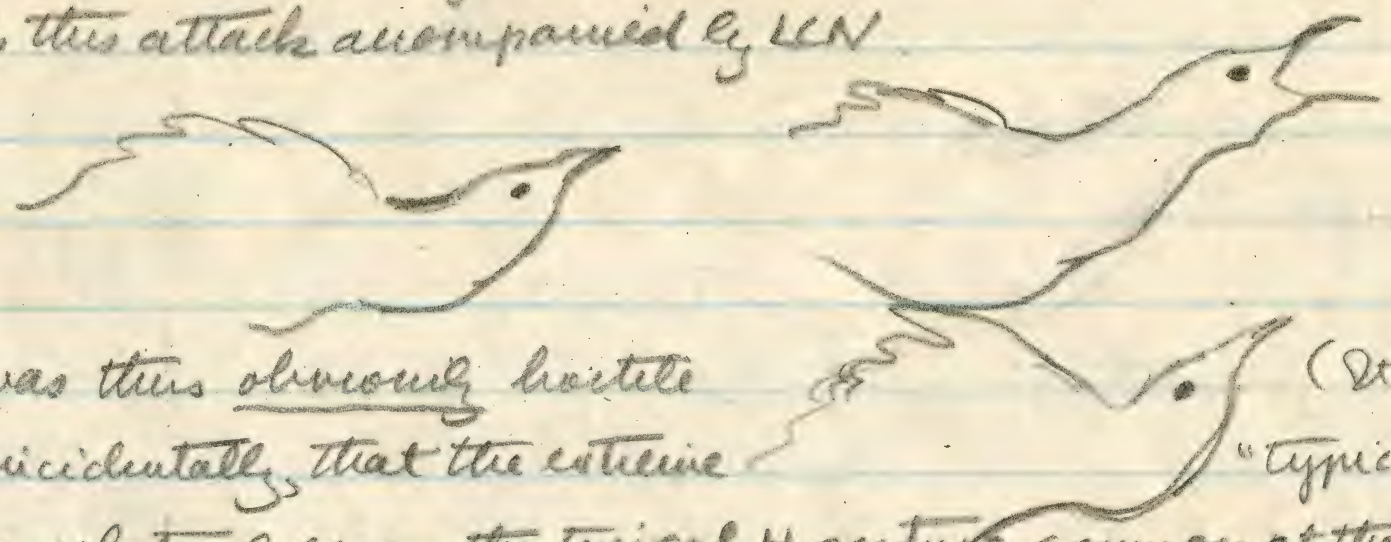
Then a most peculiar and obviously aggressive performance. Bird would go down into H, or semi-H, F, or semi-F, + definite and

modestus, Nov. 20, 1955, II.



(common just before attack)

extreme R, and then rush forward to attack one of the Belcher's Gulls. Sometimes this attack accompanied by LCN



This R was thus obviously hostile (It should be noted, incidentally, that the extreme "typical" F postures were very relatively rare, the typical H posture common at the beginning of the performance, and the postures with neck stretched diagonally upward or or approximately straight forward were common just before the delivery of the actual blow—(which often took the form, therefore, of an upward jab)

Some of these postures with R could almost be considered ritualized pre-attack postures, except for the R; and it is not surprising, therefore that a few ritualized attacks also occurred.

November 20, 1955

serranus

Zoo, Lima

A single bird of this species. Occasional dispute when another gull came near, but also a lot of threatening toward human spectators who threw things at him. (This latter fact may possibly have changed the orientation of the birds' displays, but I don't think so. In any case, the form of those displays shown to other birds was the same as that of the same displays shown toward human beings.

One brief V performed, after L.C. performance. Appeared to be rather aggressive.

Quite a number of what appeared to be single FB or LCN notes. Brief "Three"s, accompanied by momentary retraction of head & neck, into a posture reminiscent of H.!! Directed toward humans

Quite a number of more complete Long Call performances. Eventually a typical series of LCN notes "Kree-kree-kree-kree ....", getting successively lower in pitch, accompanied by O → F. The O was most peculiar indeed. Quite high, long neck, at beginning. Neck rather thick. Trace of "inverted arch" in neck. Caps way out, lowered. Rear end of body & tail definitely raised. (Could this be a "trace" or "intention movement of Chalking.) Gradually lowering until F reached. All the F's were very brief, very short-vertical, but otherwise, I think, much like F's of the B.h.G. Whole L.C. performance shown toward both birds & men.

Once saw F & R → O → F!

Also a lot of Chalking. Directed at a newspaper I ev tended toward it. Chalking - attack on newspaper - Chalking - attack - Chalking - attack - Chalking, etc. etc. Obviously high intensity. The Ch. posture itself was very much like that of B.h.G. Tail equally high. No sitting down. Call itself sometimes introduced by brief "clucking" noises. The real call was a soft "Kree-kree-kree ....."

Chalking sometimes alternated with PAG's.

General notes on the voice of this species. Quite unlike Bonaparte's or Gray-headed, and not much like that of any other of the nidulimulus group I know. "Kree's are very high-pitched, very shrill, slightly nasal. I couldn't detect any difference between the notes of LCN, (FB), L.C. or Ch., except in length & volume, (and even their latter differences were comparatively slight). Thus this species is like the other nidulimulus species in only two respects, as far as voice is concerned: its "Kree"s can be considered screeches of a sort, and its whole voice is relatively inflexible and monotonous.

Before I forget — The bill was wide open throughout O, and also F. Opened & closed during Ch., but never opened more than very slightly.

A lot of interesting R. Did R when moving off perch to feed.

serranus, Nov. 20, 1955, III

Also did most conspicuous R's when moving to attack other gulls. Would rush forward in H, or H with neck slightly extended forward & slightly upward, (sometimes approximating pre-attack posture of the Grey Gull in the same enclosure). Sometimes R when giving LCN or FB note in semi-H, directed toward me. All this definitely proves that R is aggressive. But R may also be a "pre-flight" or "pre-movement" wit, mov, also, (as in Ring-bill observed in Virginia). This is suggested by the R's when going to feed — I couldn't see any overt hostility in these circumstances.

General notes on appearance of the bird. Very reminiscent of B&G. But much larger — body looks relatively longer, head smaller. Bill shorter, but not too stout. "Frank" same shape as that of the other nidibrunalus gulls. Black, getting slightly lighter & browner toward bill. Bill & feet dark red, also eye ring. White eyebrows thin, as in Bonaparte's. Eye dark brown. Inside of mouth brighter red than outside.

November 21, 1955,
Zoo, Lima,

serranus

Bird much less active today. Only a few points of interest.

Gave single notes, LCN and/or FB, in usual lateral LCN posture with extreme R, (re chawing).

Gave a whole series of LCN, (notes as close together as during L.C. itself), all approximately same pitch, in definite O posture ("inverted arch"), but with tail not raised. Also gave complete L.C. (also "inverted arch") without tail raised, (but body, not very oblique, i.e. breast not raised very much). Also gave at least O part of L.C. in extreme O without "inverted" arch.

Definite V again, (pretty aggressive), again after the completion of an L.C. performance. Obviously a low-intensity pattern

belcheri

November 21, 1955,
Zoo, Lima

These birds weren't very active either.

One bird did G (usual bird LCN posture) → HD → O

Also one bird did long bout of Choking!! During dispute with Kelp Gull. Long neck, stretched forward, bill open, head & bill slanted diagonally downward — but slightly (see drawing). Bird sat down, flat on tarsi, during most of the Choking. Made rhythmic head movements like other gulls' Choking, but I couldn't hear any sound!! This Choking appeared during dispute with Kelp Gull, when the latter began to Choke.

Is the fact that this bird's posture was reminiscent of the M posture of other gulls significant?

It is really most peculiar that these young birds show so many displays. Much more than any juveniles I ever studied in the wild. (And the juveniles of this species were particularly dull — I never heard or saw them give a single display, not even an LCN)

The greater activity of the captive juveniles is probably due to their "tameness", they must have lost much of their fear of adults, (and also, of course, their 3 birds are thrown together much more than most juveniles would be in the wild.

November 21, 1955.
Zoo, Lima

inca

These aged birds are behaving in exactly the same ways, apparently, as they would in the wild.

Only thing of interest I noted was an posture very reminiscent of the Ch posture of gulls (see drawing). This may well be significant in connection with the hypothetical coalescence of part of an ancestral L.C. performance with Choking. (This "Ch" posture of inca was not accompanied by anything like Ch. movements)

November 21, 1955
Zoo, Lima

dominicanus

Didn't pay much attention to this bird, but it was not inactive. Long dispute with gnr. Belcher's Gull.

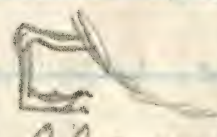
Did pronounced M, apparently in purely hostile situation. Sound + posture just like corresponding patterns of Herring Gull.

Choking itself was common (in same dispute as M, but I didn't catch the chronological relationships of the 2 patterns). Choking was apparently silent — and I was no more than 10 yds away, and the zoo was fairly silent at the time.

One saw something that might have been related to "grass pulling." Picked at feather, then picked it up — after choking.

November 22, 1955,
Zoo, Lima

dominicanus

I am afraid that some of the stuff I have been writing about this bird was a trifle mistaken. About M — this bird spent much of the afternoon doing M, then going to apparent nest-site, sitting down, with rear part of the body raised, legs bent,  comme ça, moving its feet up and down. All this looked much like autochthonous n.b. behavior. This impression accentuated by the fact that the bird also, from time to time, when off nest as well as on, pulled up n.m. (down). When pulled up away from nest, this n.m. was almost always carried to the nest-site. Deposited straight forward. Once deposited with movements very much like Choking (identical apparently).

There are only 2 things that made me think that there was possibly an "undue" amount of hostility involved. The performance was most intense when there was an "intruder", (e.g. Night Heron or Belcher's gull) in the doorway of the cave in which the nest-site + the bird

dominicanus

were located. Also it was quite noticeable that there was no sideways building.

Of course all M must have a hostile component, but I still don't know if the M of the Kelp Gull is particularly similar, in its circumstances & causes, to that of the Herring Gull or not

This bird did mutual "begging" with juv. Belcher's Gull. Latter presumably interested in food, the former in sex. The T movement & note appeared to be identical with those of the Herring Gull

November 22, 1955,
Zoo, Lima

inca

Fish-carrying ♂, just standing, gave repeated loud cht's in ☛. Nothing came of it. Eventually swallowed fish

November 22, 1955,
Zoo, Lima

belcheri

"Typical bird" juv. LCN → "pseudo-ALC" before attack (all these notes given from "typical" LCN posture, i.e. semi-V, without any raising of the carpi). This suggests that the "ALC"-type sounds are higher intensity and/or more aggressive than "typical LCN" sounds. I rather imagine that they are higher intensity. (Some "typical LCN's" certainly given by advancing birds without any signs of nervousness).

Bird gave complete LC. — — — — — — in LCN posture.

Notes of LC might be transcribed as "Keeyah heeyah ...".

Repeated peeks at banana peel, not very aggressive looking, after HD-O performance

Belcheri, Nov. 22, 1955, II.

The bird who was FB from Kelp Gull, was pecked twice by latter. Each time reacted by going into extreme Aux. U, bill very high as in adult, & HF. HF single movement. On case I forgot to note it, HF of adults are also, almost always at least, single movements too

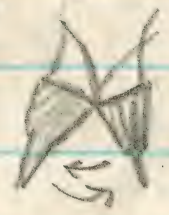
November 23, 1955

sevrarus

Zoo, Lima

Sequence: relaxed posture & R → F → O → F (This F before O has been noted before, probably good evidence that O & F are quite separate patterns

Notes on the physical form of Choking displays. Tail not spread during Choking. Wings not held out as far as wing as they are during wag O+F. Belly feathers somewhat fluffed, but not going in & out rhythmically. In at least one case, head moved slightly from side to side

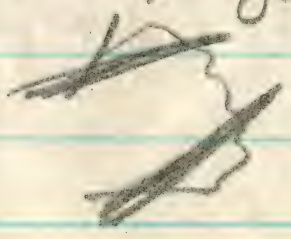


about this much

No particular foot movements

One FB note & HB, from U with bill pointed up

Notes on the physical form of the Oblique & Forward Tail is definitely spread during most high intensity performances. Carpal joints are usually held way out, so much so that the wing-tips are usually quite widely separated. No sign of any tail raising



position of tail & wing-tips

modestus

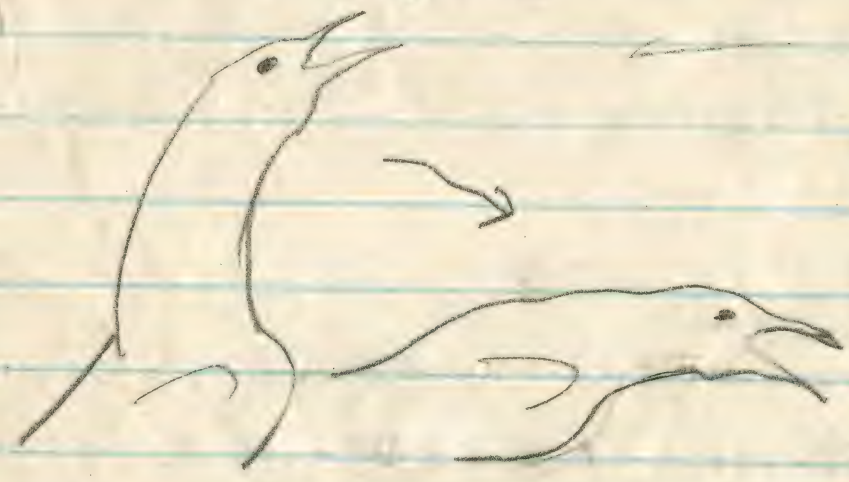
November 23, 1955,
300, Tuna

His like that of Herring Gull, i.e. → effect rather than

H + T movement + note after escape from pelican

Several interesting sequences of displays. O–T–T–T–rush in H+R+LCN at opponent (i.e. Belcher's Gull) O–T–rush in H+R at opponent. H+R would certainly appear to be aggressive.

Note on the form of the L.C. performance of this birds. Two points to be made: 1. this bird tends to do T after real L.C. 2. this and other birds don't seem to have much in the way of a real L. The neck is lowered & shortened during the course of the L.C., beginning as soon as the rapid initial notes are completed, but this seems to be more a "subsiding" of the O than anything else.



Silent "O" posture, + slight gape, after attack

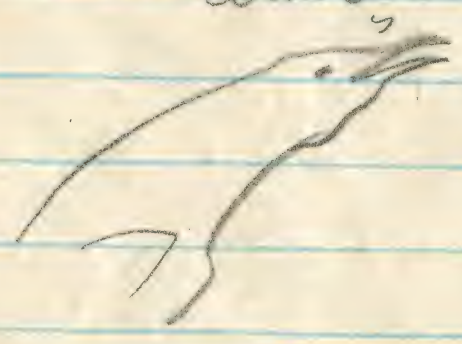



Diagram of L.C.

modestus

Thursday,
November 24, 1955
Antofagasta Bay.

Hundreds of modestus along the rocks here. Many with very white heads. Almost all with almost white heads; (there latter may be in complete nuptial plumage for all I know — there may be considerable variation). The birds are so active that I hardly know where to begin.

T. Much T. from H or semi-H. Usually, I think, leg & FB looks just like that of other gulls. There is also, however, much T-ing from a V posture, (moderate - slightly conv.); often I think leg ♂'s prominently is a pre-cop pattern; (although I haven't seen any cops yet). This latter is peculiar in form.


Can confirm that the beginning of O is very high — absolutely vertical in most high intensity cases — leaning backward in some cases when an opponent is above & behind the displaying bird.

Note: Nov. 25,
← This is quite surprisingly common, perhaps even the "usual" form of high intensity O.

modestus, Nov. 24, 1955, II.

Notice again how frequently later stages of O and L are accompanied by HF. At least when mate is present or the case of the performance HF away from mate. This is certainly one of the striking features of the L.C. performance of this species

I think my diagram of L.C. in yesterday's notes was wrong — or, at least, it doesn't conform to what these birds are doing. The complete L.C. in these birds appears to be quite standardized.

dudduh duh duh duuuuuh (L.C. proper, without the sometimes preceding T-note)
high O elevation

dubdubduh duh-daaaaaah might be even better.
Speed of call varies tremendously, sometimes very rapid, sometimes quite slow.

One thing is obvious. Some of these complete L.C.'s are just given from O, the bird elevating into semi-alert posture or even completely elevated posture immediately after last note. Here O's are always high, no sign of any lowering during call. The similar complete L.C.'s in high O, followed immed. by O. There are some L's, i.e. lowering & shortening of note, during some L.C.'s; but this is by no means invariable, and I am again impressed by the "unritualized" look of these L's, the way in which they do not look like "full" "separate" patterns. They still appear to be no more than a "subsiding" (although, of course, it is likely that they are slightly more than that — or else all O's would be expected to decline through L's. Are L's less aggressive. Aren't they returning frequently accompanied by HF's ??? I think so, personally)

The fact that this L.C. is bipartite, i.e. a series of rapid notes followed by a single long-drawn one, is very reminiscent of the Rattlet → Whittle of lucaetus.

LCN's are remarkably frequent. There is a steady clamor in this group given from an "O-LCN" posture, quite definitely diagonal, not upright like I have seen so many of late.

diag. LCN.

modestus, Nov 24, 1955, III.

Some, but by no means all, of the L.C. performances are followed by a T movement & note. Usually, I think, more like T from U than like T from H. The T note itself appears to be much as described earlier, i.e. without the undertone of rattle.

This latter, in fact, appears to be true of all the complete L.C. notes. No rattle undertone during either part. But the rattle tone is certainly present in most of the single LCN's.

Can this rattle undertone be considered, in part at least, as a persistent juvenile character? It is really somewhat reminiscent of the "rasbness" of the prior LCN's of so many species.

There is another "L" portion in addition to the one following O. This is much more extreme than the latter. Just like L & M portions of the Laughing & Franklin's Gulls. Some of these extreme L's are probably M. Others may conceivably be somewhat different. More aggressive, i.e. by the attacking bird before or after attack. Some of these are certainly accompanied by a soft, rather long-drawn "Waaaarh", which may well be homologous with the M notes of other species, i.e. a soft-muffled version of the "bare LCN" (as distinguished from the actual LCN shown by these adults — lacks rattle tone).

The whole L.C. performance of this species is surprisingly like the L.C. of the atricilla gulls. It is beginning to look as though some form of O-L-T performance was the primitive ancestral form of the L.C.

I have seen a lot of V's, but haven't paid too much attention to them. Still - it is obvious that a rather surprising proportion of the V's seen are rather aggressive, or at least no more aggressive than "intermediate". This is perhaps particularly true of the V's provoked & directed toward the mate, (even the V's by ♂'s).

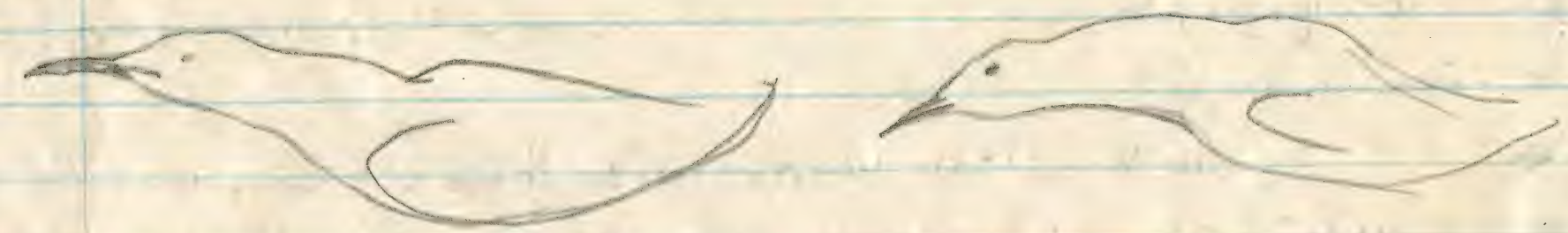
modestus

November 25, 1955
Antofagasta Bay.

Inside of mouth quite bright red now. Conspicuous during both L.C.'s and single LCN.'s.

Watching several cases of nest-site late & sexual behavior.

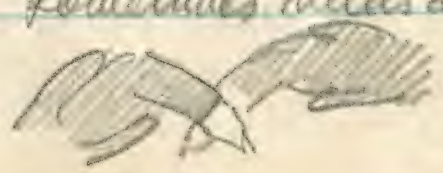
One case of ♀ approaching a ♂. She landed some distance away from him, had to approach him on foot. In V, most of the time; the usual "aux" type V. Did repeated L.C.'s to other birds as she went by. Notice that O was bent over backward each time, & this was certainly not due to the fact that opponents were above & behind her. Then approached ♂ in "silent M posture",



She stood in V. Then mutual O (without much subsequent L) — V - HF - V - HF - V - HF. A bit of V parading. That is birds walked around, the ♂ more than the ♀, in usual "aux" type V, with much HF-ing, occasional pr. & gait movements (not conspicuous — very little stylized if at all). Occasional O performances. Quite a bit of running around in "silent M". Then finally stood in V a moment, relaxed.

(I am not sure, during the above incident, exactly how many, if any, of the O's were followed by L, and/or immediately followed by a "Long Call" T.

Also watched copulation. Pre-cop performance was eventually like that of other spells, but had its own peculiarities. Mutual T, ♂ mostly from V, ♀ mostly from H or semi-H, but both birds did some T from both postures. Much walking around one another. The T's themselves were done when the birds were very close together. ♀ occasionally seemed to be trying to get under ♂, (I have seen this in other species, such as Franklin's). Occasionally ♀ into silent M, ♂ also, sometimes accompanied by T also. Sometimes walks almost around them.



moderatus, Nov. 25, 1955, II

Then the ♀ put her head to ground, in a semi-choke or Goat posture, briefly regurgitated with choking movements. She quickly swallowed back food. Both birds went back to their mutual begging as before. ♂ finally went down into M posture, (I don't know whether with call or without; bill open, of course). Begging ♀ tries to eat; but I don't think she succeeded; ♂ probably swallowed food back too quickly. Back to begging as before. Then ♂ mounted. Copulation much like that of other gulls. ♀ continued T during most of the time ♂ on her back. ♂ bill closed, apparently no Cop. Call. Cop apparently successful 3 times. Post-cop display, mutual V-HF-HF-V-Goat-V-HF-V. Then back to begging again.

One thing I have noted about the begging, both in the above and other incidents, especially the begging in H: it is accompanied by very conspicuous "nervous", side to side head-turning.

His approach to the partner in conspicuous "silent M" posture is extremely common — almost inevitable. Might appear to be an "appeasement" pattern — almost a form of H. An attempt to approach without provoking hostility.

Have seen at least one case of O followed by T in an apparently purely hostile situation.

Most flying birds give usual "rattle" LCN in flight. One bird, however, flying over me, gave pure "Meow" just like typical large Terns.

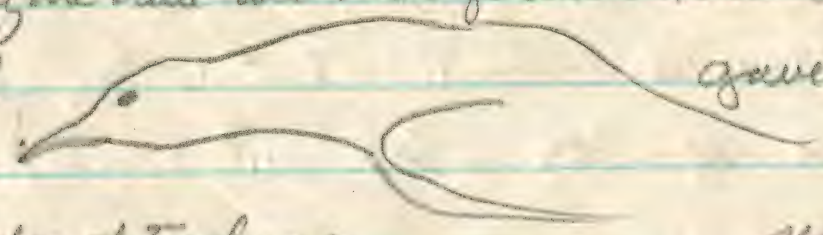
♂ stands in rather low-intensity form of V. ♀ makes off to attack other birds, makes two actual, vigorous, attacks!

One point must be borne in mind, when it comes to writing up the general review of Laridae as a whole. The fact that the Gray Gulls have essentially the same hostile behavior as the atricilla gulls might suggest that they too may have given rise to their own group of "terns". It might not be necessary to posit the repeated evolution of white head vs dark body or dark head vs light body. Each one may have only evolved once

modesters, Nov. 25, 1955, III.

Case of mutual begging followed by, and alternating with, 3 quite immature cop attempts. The begging of both ♂ & ♀ was characterized by the fact that they both alternated periods of T from H and T from V. This was particularly conspicuous in the case of the ♂. Both also LCN (♂ sometimes from semi-V), and several silent M's.

One O followed by definite L. My drawing of L is pretty good. The bill was closed by the time the bird got down into extreme L, i.e. L.C. was over; but then the bird gave several LCN's in L. (So it is possible that the second part of L.C. might be considered to have several notes rather than one.

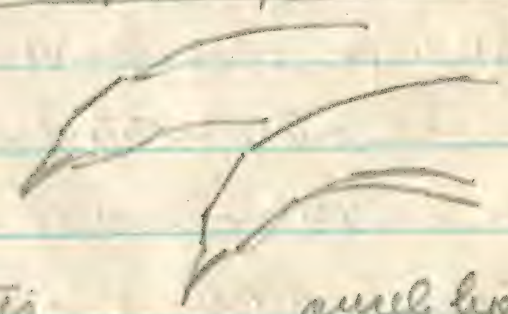


Another case of O-T in apparently purely hostile circumstances.

Have seen one bird do repeated LCN (in diag. O position) → extreme high O & L.C. The first part of this performance, with its characteristic raising of the head toward the Vertical, is slightly reminiscent of the Little Gull.

△△△ Immature cops. Three cases of mutual V.

Peculiar performance. One bird bands, apparently alone. Immediately goes into extreme M, persistent, extreme & regular side to side head-turning. M first silent, then a few M notes uttered, then silent again. Head-turning continues all the time. Then another bird bands. Does V-H=. silent M + O-V. First bird continues as before, except that 4 times pecks around violently, (each peck is really a short burst of pecks), from M. Each peck or burst of pecks, followed by extreme swallowing movements. Then



second bird moves on, and first relaxes. Was this purely hostile ?? Or, probably connected with pairing ???

Bunch of birds flying over me. A number of AlC's and LCN's. Then one bird gives complete L.C., continuing flight with normal wing-beats, without any trace of ritualized posture or movements. Just stretches neck forward a little, (perhaps slightly upward at same time, but no trace of even a semi-O). Didn't even accelerate flight.

✱ comm. area

Landing 10:10

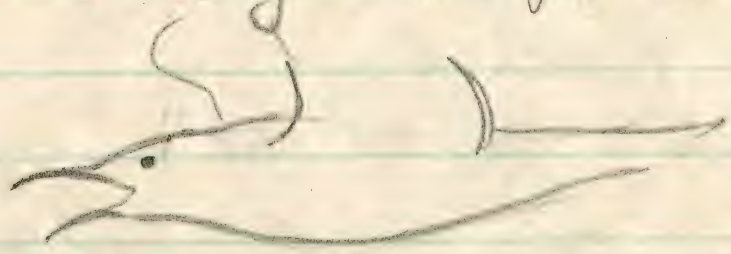
(9:40) V-HF after attack - V - LCN - LCN - LCN - V. V - SS - V - LCN - LCN - V - SS - SS - SS - O1 - V - SS - V. LCN. LCN. O - V + SS - V. LCN. V + HF after attack. 20 LCN's. LCN. LCN. T - V - SS. V. V. LCN. LCN. Got - V - HF - V - LCN - V - LCN. LCN - Got - LCN - V. V after retreat. LCN - LCN - LCN. LCN - Got.

△

Mutual V.

SS = one side-to-side turning

Inside of mouth is pink or salmon-colored.



Usual LCN posture in air, almost no stretching of neck.

Watching a ♂ making circular flights during pairing. Quite extreme. Several times circled over general area where ♀ remained, also made large irregular circles in all directions. Rapid flight, (quite the fastest I have seen), but with normal wing-beats. An occasional slight trace of erraticism. One shallow but long glide but from an unnaturally cool posture, only stretching the neck straight forward a little. Very frequent LCN's; Once definitely chased another flying bird, in an apparent case of reluctance, for about 20 yds. One the ♀ flew up after him, upon him when he landed, but I didn't follow her behavior in flight.

Didn't count mutual displays on ground between the above flights; but they were of the usual sort. First V + HF + SS, etc. Then walking around in V, with perhaps fewer HF's & SS's. One or two times of M (probably silent). Then ♂ did O - slight L, with no trace of T. Then more of "V complex", (i.e. V + HF + SS)

✱ comm. area

(10:10) V. V. V. V. LCN - O - T - V. V. V. LCN - LCN - LCN. LCN. V during retreat - V before retreat - V during retreat. V before attack - V after attack. V before attack - V after attack. O. Silent M during retreat. LCN. V. V. LCN. M + G before attack - V after attack. V before attack - V + HF after attack. M during attack. V + HF after attack. V before attack - V after attack. V before attack. M. Ch.

modestus, Nov. 25, 1955, V

The Ch noted in preceding line, was done by both birds of a pair, half asleep, when a stranger approached them. Probably a very low-intensity form of Chalking.

Birds were already sitting before Ch began

The birds just put their bills to ground, made brief, slight, but unmistakable up-and-down Ch movements. Didn't hear any sound

Add one pattern to pairing sequence. Walking in Gost posture, or just a Gost movement when standing still. Occurs during "V complex", with or without accompanying M's

* copul. area. M. Agg V after attack V before attack – V after attack V. V. Ch (as before). Agg V & HF after attack – pr. – V M (all patterns marked just M are silent M's) V. V-SS-V. V-T. V, Agg V before attack – Gost after attack – V+SS.

Silent M is the usual way to approach partner or potential partner.

Been watching a copulation. ♂ silent most of the time including the periods when he was lowering his tail and making actual cloacal contact. But, he opened his bill and I am almost certain uttered a Cop. Call when – and the ♀ started to struggle or tried to run away. Bill opened just slightly, kept open, no OCB. Audible sound was a very soft "uh-huh-huh-huh ...".

♂ running, moderately slowly, with pauses, after ♀ who is retreating. ♂ does V-M-V-M-V-Gost-V-M-V during his advance. Both ♂ & ♀ finally do V+HF when ♀ lets him catch up. Both then start to preen.

Can see absolutely no reason why some birds give pure "Kreow" LCN when flying and other birds give LCN with "rattle undertone". Only possibilities – and these seem to be extremely remote – is that "rattle" LCN is a character of young birds, or that the "Kreow" is motivated by relatively stronger escape

Apparently no Landing Call

Bird after fight with neighbor, walks toward partner in M, then

stops some distance away, stands in M, bill to ground, (head is perhaps slightly bent on neck – posture more strongly downward than neck – thus not "pure" M posture), utters "uh huh huh uhoooah ooah uh huh huh ..." out of business. This appeared to be exactly the same as the mixtures of M & Ch notes uttered by such species as Franklin's Gull during low-intensity Choking. I E. the M note in this species too, appears to be a "low-intensity form of Ch". (The Ch sound was very similar or even identical with the Cop Call I just heard)

I wouldn't be at all surprised if the "running in Gait" pattern occurring during pairing were a form of running in M. Gait is often from a semi-M posture, and the two patterns seem to intergrade completely.

The common approach to partner on foot is actually M – V+HF – (V) – preen. The preening looks completely ritualized, but it often follows immediately after the V+HF, and is often followed immediately by other displays (e.g. T) so it is probably not "coincidental" or "purely autochthonous".

This species, with its long wings, looks almost as tern-like as inca in flight.

Have heard one L.C. on ground with an extra syllable in the first part ▬ ▬ ▬ ▬ ▬ ▬ ▬. This is the only case I have heard, however, and the rarity of such variations cannot be too much stressed.

* comm. area O' O'L – L'+LN. (L" stands for L posture part of L.C. performance. Often silent at end — and thus cannot be told from silent M. Must be stressed that extreme L and M posture are literally identical). V before attack – V+HF after attack. V – Agg – V – M+M note before attack V after attack M – O. Agg V after attack – M before attack – V. V. V. V. V. V before attack – V after attack.

Another copulation as before, again O' only gave Cop. Call when ♀ moved. But this time some of the Cop Call notes were given with bill absolutely closed.

△ ♂ M+M note – V+HF – V ♀ V+HF – V

Bird flying by during panic caused by 2 boys walking through group, gave M note in flight, in usual neck stretched slightly forward posture

moderates, Nov. 25, 1955, VII.

I think that all the most aggressive forms of M, with or without M note, tend to be with heads bill pointed slightly more strongly downward than the neck

* comm area

M before attack – M+G during attack – V after attack. V. V. LCN. LCN. M during attack – V after attack – V – SS – V – LCN – V. Ch – Ch. V – M – V – goat – V before attack – V after attack V, V. V. V before attack – V after attack V after retreat

♂ does V – goat – V – goat. ♀ does V – HF – V

Many of the "attacks" included in the above counts are no more than feint rushes toward an opponent. This is particularly true, perhaps, of the M's before attack. This species, incidentally, seems to be particularly prone toward such rushes.

Leaving 12:20 Back 3:50

* comm area

LCN. LCN. V. LCN – goat V – LCN – goat. M. LCN – LCN – goat V before escape – V after escape – goat – V – goat – V – SS – SS – V – goat LCN – LCN – LCN – LCN – LCN – LCN. goat after attack. V. V. V. O. V. V. agg. V – LCN. V – LCN – LCN. goat. goat. V – SS – V. V – SS – SS – V. O – L – LCN – goat – LCN

Actually I seem to be using "SS" for a "bout" of side-to-side turning Not just for one motion to each side

Aerial LCN with "rattle inclusion" might be transcribed as "tararararrrrp"

The bipartite nature of the L.C. might be significant in connection with the "L.C. homologues" of unica, except that so far I don't see any correspondence between the various parts in circumstances or presumed motivation

A more rapid aerial LCN with "rattle" could be transcribed as "tarrrrrrrp"

Certainly, many of the birds uttering LCN's with "rattle" appear to be fully adult in external appearance.

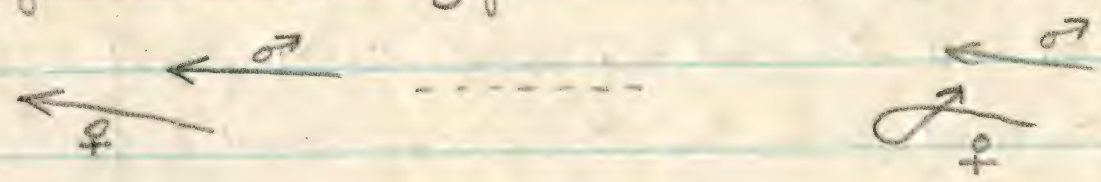
Although many of the "plain" V's appear to be slightly on the aur. side, I don't think I have seen anything like a real aur. V, i.e. bill pointed upward

▲ (Toward flying birds. O – L. O – L. LCN. LCN. O – L LCN – LCN – LCN – LCN LCN – LCN LCN. LCN. O – L – HF. O – L.

moderates, Nov. 25, 1955, VIII.

It is becoming fairly obvious that the L.C. performance is relatively much commoner during M.C.'s between mates than during the low intensity disputes I have been counting.

Peculiar orientation of L.C. ♀ & ♂, apparently mated. Both O. But, at the end of O, the female turned away from the male, to look over her shoulder toward him.




Good view of ♂ feeding ♀ performance. ♂ T from H repeatedly. ♂ stands in M; silent M – M note – silent M – PAG – silent M – PAG – silent M – M note – silent M – M note as ♀ continues. ♂ suddenly squeezes, ♀ sucks up & eats food. ♂ immediately V-T-V-T-V. ♀ just V-HF-V-HF-V. Then ♂ continues T-ing steadily, but his posture becomes more & more like H. ♀ continues T-ing too, but she tends to keep on V between T's. ♂ does one PAG, several violent, rapid, and "nervous" preening movements interspersed with his T's. ♀ does one preen. Then both begin to preen in normal fashion & relax.

Noted that back of ♂'s head was thrown back right onto his shoulders when T'ing from V. But bill not pointed back very far. Hardly more than vertical – if that. Explains bend in neck.

M note can be transcribed as long-drawn, soft "Ahhhhh" or "Waaaah"

Now that I mention it, the M note and the second part of the L.C. are very similar; but the latter is louder, more "wailing" — "waahaaaah" with a tendency to ---

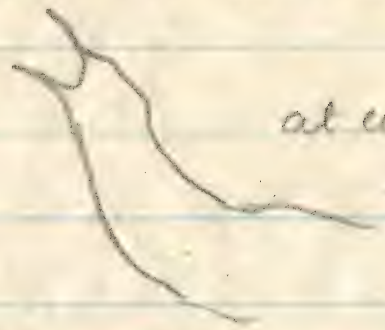
* comm. area
End 5:00
Begin 5:50

V. V. V. V-M. V-LCN. V- LCN in O posture V-LCN in O posture gort-gort-gort. V-LCN-V V-SS-SS-V-gort-V. V. LCN. M+M note-gort-M+M note-M+M note-gort-gort-gort-gort. V. V-L. V. V. V-SS

Peculiar L.C. performance. Plain O as usual, then an extra "waahaaaah" note as neck was slightly lowered. This lowering was really peculiar — as the back of the head went down first, rather giving the impression of an

modestus, Nov. 29, 1955, IX

semi-inverted arch as in F. But the lowering was relatively slight



at end of this peculiar lowering.

I have been watching one adult bird, in definitely incomplete nuptial plumage. Twice did normal L.C., O alone, followed immediately by two notes, relatively brief "wah" sounds (quite unlike brief notes of first part of L.C.). First of these "additional" notes in pure O, second in almost pure O — but with a little shorter, back of head definitely lowered, i.e. perhaps a trace of T.

In connection with the generally very stereotyped nature of the L.C. call itself, I should add that I have never heard either the first or second part alone.

That same bird in incomplete nuptial plumage is back. Again has given normal L.C's with 2 additional notes. Exactly same portrait as before. This is definitely an individual peculiarity. Is it connected with incomplete plumage?

* comm. area. Gort - N - V - O - V - HF - V - LEN V.V. O - L - T - V - N before attack - V & HF after attack - V - N before attack - V & HF after attack - LEN. V before attack - V after attack. V after escape

Part of my counts of low-intensity hostility have been made on the sherries, part on an absolutely flat field, bare of vegetation, by water. There is at least one great difference in the hostility shown on these 2 sites. Attacks were relatively common in the field, relatively uncommon on the sherries. Is this due to the very rough & uneven surface of sherries?

♀ FB from H. The T notes can be transcribed as "Wuh" "Wuh" ....

It is my definite impression that the T notes sometimes occurring after L.C.'s are sometimes more like brief versions of second part of L.C. than are other (e.g. begging) notes. But this is probably only occasional

♂ V ♀ V - Gort

modestus, Nov. 25, 1955, X.

Apparently another case of a bird giving complete L.C. in air from an unmutilated (really, I suppose, slightly retrialed) neck-stretched-forward posture

It is actually not infrequent for a flying bird to give 2-3-4 LCN's before it lands. But the majority of birds are silent. And these notes are not usually given during the actual landing itself so this still isn't a Landing Call

From the accompanying portraits, and the decline of the sound toward the end of the L.C., one might assume that the first part of the L.C. is higher intensity than the last part. Is this true?? Or is there just a difference in relative aggressiveness?? Is it safe to assume that O is higher intensity than L? Certainly the O portraits during L.C.'s are far more extreme & exaggerated than the L's in the same circumstances — on the average — but could this conceivably be due to the fact that L is on a higher intensity-level and never appears in a high intensity form in such circumstances (like low-intensity Ch during communal area and other brief disputes)??

The usual T and M sounds ("uh" or "wuh" and "oorh") are not dissimilar in quality. T note sounds almost like brief M. This means that the T note of this species is relatively more muffled than the corresponding notes of other species I have studied.

Leaving 6:50

I was spent watching comm. area on shorelines: 9:40-10:10, 3:50-5:00, 5:50-6:50

I was spent watching comm. area on field: 10:40-12:20

Went back at night (after 10:00 p.m.) to see if birds were still there. None on field. At least several hundreds on shorelines, (probably others on rocks in distance — could hear occasional calls far off)

Thus I don't know if these birds have occupied a colony or not

*modestus*

November 26, 1955,
Auto Jagueta Bay.

Quiet 6:10 a.m.

♂ [redacted] on ground end 8:00

V-HF-V-T-T-V-gort-V-gort-V-T-V. LCN-LCN-LCN. O-L-V. O-L-HF-V. LCN-M. Agg V-V-LCN-V. O-L-HF. V-SS-V-M-gort. V-LCN-LCN-LCN-LCN-LCN. O-L-HF-LCN-gort-LCN T-M. M-V+HF-V. H-T-V+HF-M. O-LCN-LCN-O-HF-T-T-M-V-M note from V-V-M note from V-V-M note from V-V.

[redacted] ♀ on ground end. 8:00

V-HF-V-T-T-V-T-V-T-V-T-Or-V-T-V-Or-V-T-V. V. M-V-HF-V. V. LCN. M-V-HF-V. O-HF-V-M-V. M-HF-V-HF-V-SS-SS-SS-V-M-V+HF. V-SS-V. T-LCN-LCN-LCN. O-L-HF-LCN-T-LCN-gost. T-T-V-T-V-T-T-V-Or. V.

✱ Comm. area shrieks end 8:00

O-L LCN-LCN. V after attack. V. V-LCN-LCN-LCN-V-gest-V. LCN. V. V. V. V. V. LCN. LCN. O-L. O-L. Agg. V-V. V-SS-gort-gort. V-LCN. LCN-LCN-LCN-LCN. V-HF-V before attack-V after attack-O-V gort. gost. LCN.

[redacted]

Copulation much as before, but this time ♂ uttered loud "Dah kah kah kah ...." whenever ♀ moved. (These notes were rapid, but by no means as fast as the quick or lip call of Franklin's Gull, for instance. Probably best considered form of LCN. Bill wide open during notes themselves; I think tended to close between notes.)

Δ ♂ does M-V-SS-V. ♀ flies away, in apparent escape.

[redacted]

I am not including pre-cop or post-cop displays in my counts of ♂ and ♀ behavior, but I am including those displays associated with regurge.

[redacted]

Almost no doubt, I think, that many of the LCN's during communal area disputes are "long-distance" patterns, while all, or at least most, of the V's are relatively short distance.

▲ LCN LCN-M. M-O-L. 20 LCN's. LCN. LCN.

[redacted]

I have seen quite a number of birds, just standing and giving repeated LCN's from the usual postures; i.e. bowing O, or, less frequently, some V LCN posture. Occas. from M. These are sometimes, I think, ♂'s calling them females. If so, then the LCN is more than a purely hostile pattern. It may still be something of a "general frustration" (i.e. sexual thwarting)

reaction (Must check on this).

* comm area shrubs

M+HF after attack LCN-LCN-LCN. Ending 8:00 a.m.

Outside of bill, eye, eye-ring, & feet appear to be perfectly black, even at short distances. White eyebrows still noticeable in even whitest heads.

Either I'm getting more cautious — or else this species is even more cautious about orientating its hostile displays (particularly LCN's — but also L.C. performances & V's) than most gulls. There are an awful lot of them which leave me baffled, having no idea what provoked them or to whom they are addressed.

△ ♂ does M-LCN-M-LCN-M-LCN-M. & flies off in escape

Watching another bird, adult in incomplete nuptial dress, standing on isolated rock, (no other birds on ground nearby), giving repeated LCN's from usual posture (come from a semi-M) apparently directed toward flying birds. Gave 21 of these, then eventually flew up, circled, and flew off to land about a 1/4 mile away. Gave constant LCN's in flight. Both the LCN's on ground and in air had a "rattle undertone". This couldn't possibly be connected with pairing could it ??? The behavior of this bird looked rather like an "invitation"

Noticeable how few attacks there are by males on females — at least at this stage. I think they do occasionally occur, however.

Head & neck are inclined just slightly downward during some aerial LCNs

Bill looks very long.
Mouth opened very widely.

This may be something like "pointing the bill toward the partner". It has just struck me that I have seen waders turn to look at one another, usually in V, sometimes stretching the neck forward a little so as to move the head slightly nearer the partner, quite frequently. Probably not associated with any particularly intense form of hostility or sociability.

△ unmerciful ♂ & ♀ both V+HF

Have just been listening to one male's T notes & M notes. Very reminiscent of Franklin's Gull.

modestus, Nov. 26, 1955, III.

One Cop Call, at least, noticeably slower in rhythm than Choking.
Have seen ♂ in incomplete nuptial plumage give repeated M notes from a "V" posture. Becomes rather more curved during the emission of the note itself.

Rather long thin neck – as in almost all, or all, the "erect" displays

* comm. area, field

(9:55) G G. V during retreat. V after attack M–T. V+HF after attack. LCN–LCN–LCN before attack – V+SS after attack V+G before attack – V after attack – V+G before attack – V after attack. V. V. V. V. V+G before attack – V after attack V before attack – V after attack – V before attack – V after attack V–LCN before attack

ΔΔΔ ♂ Ch., ♀ V+HF. ♂ T–T–T–T from H; ♀ V. ♂ V+HF; ♀ V.

♂ 9:55 T–T–T–T. G–V+HF V–T–M–M+M note. O–L–M–V–T–T–V–T–T–T–M–M+M note–V–T–V V+HF, T. V. M+M note M+M note + SS. M–V+HF–M–V+HF T–T–T–T–H–T–H–T–T–T–T–T–T–H–T–H–T–H–T–T–T–T–T–T–T–T–T–T–T–T–T–T

♀ 9:55 LCN. V–HF–V–T–T–V–T–T–V. V. V. V. M–V+HF–M–V+HF. V+HF–V–SS–V+HF–V–V–V+HF O–V–pr–V. O–HF–V–escape–V+HF–escape–V–reduction attacks on neighbor. V. V+HF–M–V+HF–V–pr.

* comm. area field

V after attack V after attack – V+HF V before attack – V after attack. V before attack – V after attack V during retreat V before attack – V after attack. Bird in V attacked – V after being attacked V. V. V. V+SS after attack.

Interesting case of pairing behavior ♂ runs to ♀, in G, after O-L. Then both go through "V complex", mostly just plain V's, then lots of T's intermingled with the V's. Then ♂ down into M+M note. Two interesting things about this. One: ♂ made repeated reduction attacks on nearby birds, after he had joined the ♀, interspersed with his V's & T's. Two: ♀ regurged briefly once while ♂ was off attacking neighbors, swallowed food back immediately.

▲ 0.

moderates, Nov. 26, 1955, V.

Another complete L.C. by flying bird. Flying near me, and I may have been the stimulus. Again just with neck stretched forward, C stretched quite a bit in this case

♂ M-V+HF, M+HF-V-HF T-H-T-T, M-T-V+HF-T agg V+HF-V-agg V+HF-V. V+SS-V. V gait-V-gait-V+HF. T-T-T-T-T-T-T-T-T-T-T-T-retrieve attack on neighbor V-V-pointing bill to ♀-LCN-V V-SS-pk.

♀ M-M+M note-V-M-V+HF V. V-HF-V-SS-V. M V-T-V-T V-HF-V LCN-LCN-M-V+SS-escape-V. V. V. T-T-T-T-T-T-T-T-T V-V-escape-V-escape V-V-SS-SS-V-pk

Have just seen ♀ land some distance from ♂, give M+M note, at which her mate came running to her in M.

♂ V; ♀ V+HF-V+SS-V-V. ♂ M-T-T, ♀ T-T-T-T ♂ V+SS, ♀ V+HF

Bird giving aerial L.C. as it comes in — neck very stretched, gliding very fast. This was a quite conspicuous performance.

✱ comm. area field. agg V before attack - agg V after attack agg V before attack - V after attack V. V. V. V. agg V before attack - agg V+HF after attack V. V. LCN.

The notes uttered by flying birds before landing are always "rattle" type. Also the overwhelming proportion of notes by birds just flying around in a more or less calm manner. I think, therefore, that the "pure" notes, without "rattle", must be relatively higher intensity — if nothing else.

✱ comm. area field V-agg V. - agg V+G before attack - V+HF after attack. V-HF after attack. V. V-M. agg V.

Almost all birds asleep by 10:30-11:00

Have seen several cases of attempted rape. Don't know if by mate or not

♂ V, ♀ V-SS-V. ♂ gait, ♀ V-SS-V-SS-V.

Have seen a lot of copulations not preceded by ♂ feeding ♀. Just mutual T, the more highly motivated partner alone, the most T's T's from V, H, & M, or any intermediate postures. A strong tendency for the more highly motivated partner to walk round & round the other. The ♂, at least, may utter M notes

Modestus, Nov. 26, 1955, VI

without any sign of actual regurgitation. Have again seen ♂'s mount straight from H; (this may be the usual procedure after all!).

Better add another full category to my general classification of calls in gulls as a group. Add "fragmented" to "single note" "low-intensity rhythm of repeated notes" and "high intensity rhythm of repeated notes". "Fragmented" will take care of the Alarm Calls, etc.).

Heard flying bird give "rattle" LCN; then, without any perceptible break, give a rather long-drawn "Wah" note, rather reminiscent of M note. (May have been calling mate; this bird landed shortly and went straight into M).

One copulation included 9 separate contacts of the cloacas!! This was also the first copulation in which I noticed the ♂ pecking down at the ♀ when she became restless.

The HF movement is really more complex than a simple sideways jerk. Often includes a downward pointing of the beak as the flagging movement occurs ⌣. This is very rapid; and the bill has come back to its previous (usually horizontal) position by the time the flagging movement is completed.

I think that a similar downward swing was also characteristic of the HF of nica, (and probably also of belcheri). May be characteristic of many forms.

Leaving 1:10 p.m. Back 5:20. Birds all on field, and I can't get there because of high tide.

LCN. LCN. LCN. LCN. LCN. O-L-T O-L. LCN.

Have seen one extreme L, after O, in which the bill was inclined slightly upward, thus producing an approximation of an F. But this is the only case seen so far, and the posture itself was much less extreme than the "F" of Juliginosus.

Towards way to field 5:50.

* comm. on field LCN-LCN-LCN-LCN-LCN agg. V before attack - V after attack LCN-LCN-LCN. O. agg. V before attack - V after attack V after attack. M before attack - V after attack V during retreat. O. V before attack - V + SS after attack

Woodstock, Nov. 26, 1955, VII

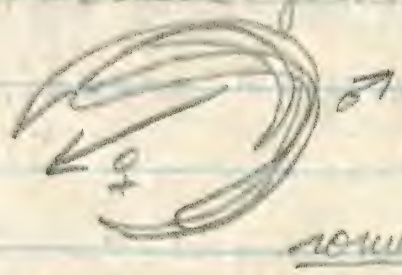
♂ 5:25 – 7:25 T-T T. T. U-T M. LCN-LCN-U-T-pk. U-LCN-LCN-M-reduction attack on neighbor M. U U+HF-U-T-U. M-M-T-T End 7:25.

♀ 5:25 – 7:25 Got: T-T. U. aux U-SS-SS-escape-aux U U-LCN-T T-T-T-T-T-T-T-T-T-T-T-T-T-T U. M-U+HF-U-T-U. M-U+HF-U-T-U-pk. LCN-O-L-M. End 7:25.

△△△ ♂ U+HF; ♀ U. ♂ U+HF; ♀ U+HF ♂ U+HF, ♀ U+HF-aggr. U.

Again several examples of ♂ mounting from H, after he had done many T's from M, and run around the ♀ several times in M, with or without T's as he ran. One example of a ♂ giving several T's after mounting, before beginning copulation.

Watching preliminaries to copulation in one pair ♀ stood in semi-U, doing extreme T's, but not very frequently. ♂ running around her in M & H, doing many less extreme T's. Then just passed back & forth behind ♀, just coming up level with her on each side, i.e.




, still in M & H, still T'ing furiously. Sometimes, when he drew up toward the front of the ♀, there would be some brief mutual billing, i.e. birds would nibble at one another's bills, in semi-U or U posture without T. (This is probably a development of the usual FB of gulls; but it looked rather unlike any I have seen before).

A few additional points also noted during this incident. 1. When one partner runs around the other, the running bird is almost always in M or H (and I have seen this in lots of other pairs also), and these M's and H's intergrade constantly — you could not really draw a line between the 2 patterns if they only occurred in such circumstances. 2. Again impressed with the fact that there are two morphological types of T. One from H and M, bill & front part of head being raised only slightly, back of the head is thrown backward onto the shoulders and the bill points toward the vertical

A second from U, in which the extreme as the T's of Franklin's or Laughing Gulls — but quite diff-

(The latter is quite extreme, as in

Modesto, Nov 26, 1955, VIII.

physical form (i.e. the bill is never thrown much past the vertical)

There is still a trend type of T, in other circumstances, after O during L.C. Thru like the T from M or H. A relatively slight movement; the bill being thrown upward, and the back of the head going down & forward, not backward. The bill seldom reaches the vertical, and almost never passes beyond it. (The T's from L incidentally are just like the T's from other M postures).

Another complete aerial L.C. & glide by bird flying above me. Is aerial L.C. a reaction toward a "potential predator?

I have seen only two patterns that look as if they might be possibly connected with actual pair formation. One is the solitary birds among LCN's towered flying birds. The other has only been seen in this field. Occasionally noted bird running rapidly through the group, in M, will go into V and HF with several birds it passes. Have never been able to follow these birds further, however — they usually fly away.

Free conclusive case! of travelling alone. Does LCN-LCN-LCN-LCN-O-½L-LCN. (Some of these LCN's may have been slightly "softer" than usual, i.e. transitional to M note). Then flies up, flies 300 yds away, lands in new place. Here does M note in LCN posture - M note in LCN posture - M note in LCN posture. At this stage, bird ♀ comes running to him in M, and they both perform mutual V & HF, then begin mutual T-ing. This is good example of LCN, O, and M note in LCN posture apparently due to thwarted MV drive

Another equally convincing case of the same sort of lands alone. Does LCN-LCN in M-LCN-LCN-LCN-LCN-LCN-LCN. Flies up and lands in another spot several hundred yards away. Does M+M-note-LCN-LCN-O-L-M. Then bird ♀ runs up to him in M. Mutual display, preen, relax.

Complete aerial LCN & glide by bird coming into land rather far from me. (There may well be a general tendency for a glide to accompany aerial L.C., but it probably isn't invariable. Not only do some aerial L.C.'s occur without it, but all the cases I have seen have been by birds flying fairly low

Moderates, Nov 26, 1955, IX

over the ground, and it may be purely a matter of aerodynamics). All the aerial L C's so far seen have been accompanied by the same slight-moderate forward stretching of the head & neck, horizontal head

Jumpy Silent Panic 7:05 Don't know why. Very few erratic flight patterns in this panic. Panic starts to break up a dozen times, birds circle back over field, then off again in another panic even before they start to land. This goes on for at least 15 minutes. Finally, by 7:25, several hundred of them have landed in a flock on water, where they seem to be relaxing, and a few have landed on the rocks and are relaxing too.

Hundreds of other birds, however, form flocks in air, circle very high in air, and then start to drift northwestward, with many interpersed periods of circling and at least one Silent Panic up high in air. These birds are primarily going to a roost.

It was very noticeable that each time the Silent Panic started to break up there was a temporary burst of LCV's (white understone) by the birds. I have also heard the same notes after many other panics.

One bird, flying rather high, far away from me, gave a complete aerial L.C. during one of the periods of semi-relaxation. The usual pattern — with beating wings.

One bird flew up when the others first panicked, but, before joining the others in their escape, flew about thirty yards, very fast, with deep wing beats, and moderately shallow swoop, with beating wings, , and then soared upward with motionless wings. This bird uttered four or five, rather long-drawn, pla- intive, "Wah" or "Waaaaah" notes, during the accelerated horizontal flight and the subsequent swoop. In other words, this pattern was just like the swoop & Pee → rear pattern of the Ring-billed Gull!!

* Time spent watching comm. area on Thursday: 6:20 – 8:00
" " " " " " " " " in field: 9:55 – 1:15; 5:25 – 7:25.

moderates

November 27, 1955
Antofagasta Bay

Arrive field 7:05 a.m.

* comm area field

V before attack - V after attack LCN - O - LCN - V. LCN. got. V. M between attacks - M + G before attack - M after attack. V + HF after attack. V + SS after escape. LCN. LCN. V + HF after attack. V before attack. V + HF after attack - V. V before attack - V after attack - LCN before attack - V after attack - LCN before attack -

♂ Bird 8:45 begin 10:45

V - HF - V - pk - V. T. H + T. M - V - M V - HF - V - HF - V - HF - V - pk - V - pk - V - HF - LCN - V + HF - V - pk - V - pk - V - pk - V + HF - M - V + HF - V - T - V - T - V V - V + SS. V - V - pk V - HF - V - pk - pk - pk. V. V - LCN - LCN - V - HF - pk. M - V. M - V - HF. V - M - V + HF - V V - V + HF - V V.

♀ bird 7:45 begin 10:45

V - HF - V. V - escape - V M - T - T - T - M - T - M - T - T T - T. V - HF - V - HF - V - HF - V pk - V - pk - V - HF - V - HF - V - pk - V - pk - V - got - V - pk - V + HF - V + HF - V - T - V - T. V - pk - V - pk - V - pk - V - T - V - V. V - HF - V + SS. V - L - got V + HF - V - pk - pk - pk V + HF V - pk V. H - T - T - T - T - T - V + HF - V. V - LCN - V - V + HF - V - T - V V - L - T - V

▲ LCN - V. LCN. LCN. LCN. LCN. V - HF. V - L - HF LCN - LCN. LCN. LCN

Noticeable how often both members of a pair will run along in M together, either side by side or one following the other. In some cases this appears to be a form of semi-escape by ♀, with the ♂ following higher. In other cases, (probably the majority), both birds appear to be slightly aggressive, often reduced to this aggressiveness toward neighbors.

△ △ △ ♂ V - M - T - V, ♀ V. Both V. Both V.

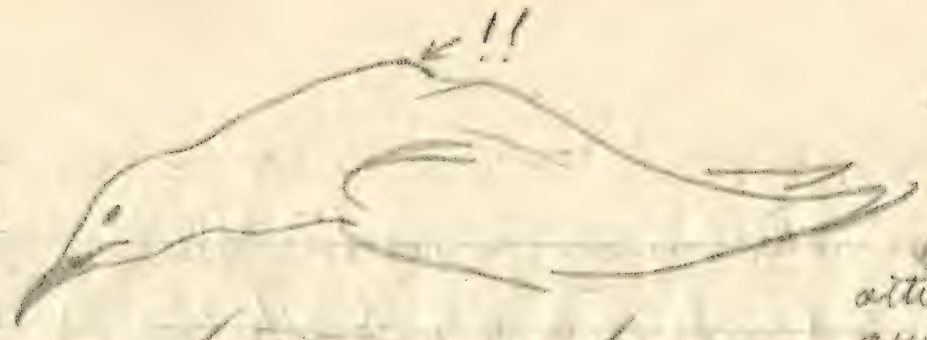
* comm area field

V after attack - LCN - LCN - LCN - LCN - LCN. V + HF after attack - pk. V + HF after attack. V - LCN - V before attack - V between attacks - V after attacks. V - LCN - V before attack - V + SS after attack. ♀ V after attack. V before attack - V after attack - V before attack - V after attack - V before attack - V after

Have just heard 4-syllable Al C which sounds just like some of the Al C's of the "large Larus" gulls.

There is a most conspicuous "hump" on the shoulders of birds traveling or running in M:

Moderato, Nov. 27, 1955, II.



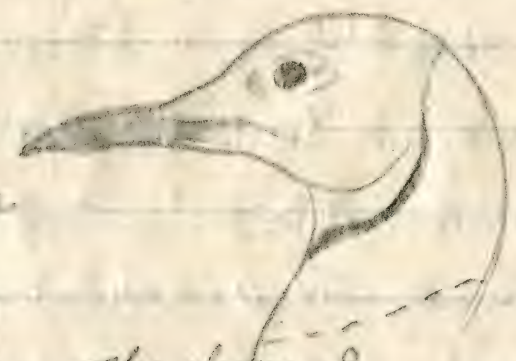

This lump may be an "indication" of regurge — as it becomes larger, rounder & more swollen before actual regurge, but it often occurs without any other sign of regurge. So think it is quite independent of regurge.

* comm. area, field

attack V before attack — V after attack L.C.N. L.C.N. V before attack — T after attack V after attack V after attack V.V — L.C.N. V before attack — V after attack V before escape V.V.V ♂ before attack — V.H.F after attack V.S.S. after attack V.V V — ♂ before attack — V after attack V — ♂ before attack — V after attack

Numerous, both V.H.F — V. ♂ M — T; ♀ V. ♂ O.g.g V.; ♀ V.

There is a fairly definite line crossing the end of the white head in the birds with most complete nuptial plumage



the eye looks quite large in these birds

the shape of the head is variable, but it is always rounded

Line is quite definite on lower part of cheeks & chin. Much more diffuse & less conspicuous on nape — the feathers of the upper neck are light grey, and tend to fade into the hood

Bird sang high intensity L.C's on ground. Beginning each time in semi-O semi-L, then going up into extreme O, then coming down into semi-O semi-L. The initial semi-O semi-L was once accompanied by L.C.N (very little "rattle"). This appeared to be one of the highest-intensity L.C. performances I have seen so far. Might add that I have seen a number "rising" on some other L.C's — bird beginning in extreme O, then going up even further, and leaning backward, before coming down and forward into a slightly less extreme O, or even L. This ⌒ progression was, even be the "usual" form).

Heard immature bird (brown on secondaries & tertials, but fairly complete hood) give O & L.C. just like that of adults

Almost all the immatures I have seen have been showing mated. Have seen immature ♂ mated with adult ♀, and immature ♀ with adult ♂.

Modesto, Nov. 27, 1955, III.

* unusual area field, and 9:15. Before attack - After attack, Before attack - After attack, Before attack - After attack, Before attack - After attack, Before attack - Pass after attack, L-L. Before attack, After attack - Bird in Attached - After being attached

Finally I was finally let on to pair-formation on the very earliest stage of pairing. ♂ on territory was one, mostly on a little knoll, but includes low ground on side. Hen ♂ spends some time alone at a pairing, but most of the time in alert posture, semi-U, or U. (Head looks relatively large, body small, neck not as long as in some U's) Looking alertly from side to side. Occasional Gort. Does SCN's from U, (i.e. neck becomes slightly curved, head moved forward, with the utterance of each note ( ), at most of the birds flying overhead. Once did O to flying bird. Did complete I.C. with O → L about six times toward flying birds. Occasionally would rush off to attack other birds, quite vigorously (by far the most vicious rush of attacks I have seen so far). Always returning, sooner or later, to his "station" on the knoll. Occasionally flying off on circular flights. On attack neighbors or intruders and then go off on circular flight. Many SCN's ("rattle tone" during these circular flights) always returning to almost same spot to resume SCN's.

Pair ♂ was visited by a ♀ twice (I don't know whether same ♀ or not) I didn't see the first approach. The second approach, at least the last stage of it on foot. One questionably ♂ was O-U+HF-U. The second was O-L-M+HF-M-M+SS-M-SS-M-SS-M-T-T-M-T-M-T-M-T-T-M, (all the T's were from semi M, semi H posture). All the ♀ did was U, plus one or two HF, plus many SS's (not very rapid or numerous - appearing - but, later, neither were the ♂'s), and one T, from U, when the ♂ was T-ing. The first visit was ended by the ♂ attacking the ♀, the second by his making a series of reduction attacks on neighbors). ♀ flew away eventually.

The second time the ♀ flew away, she landed about 200 yds away. Here she just stood, giving occasional LCN notes. Then she was joined by

<u>moderates</u>, Nov. 27, 1955, IV.

another ♂, approaching on foot. She did O-semi-L, then just stood in more or less V, with perhaps an occas. HF or SS (these perhaps are too-slow to be real "SS"s). ♂, however, did O-V-T-V-T-V-T-M-T-T-M-M sort of business, (beginning his T's from V, very extreme, and then going down more or less gradually into M, even, perhaps, semi-H. It is M's, like those of the first ♂, were accompanied by much slow- to moderately fast side-to-side head-turning. Then this ♂ flew away, leaving the ♀ on ground, and didn't return during the period I continued watching the area.

(This second ♂ was in very incomplete nuptial plumage, while the first ♂ was in complete plumage).

Meanwhile, the first ♂ was continuing his behavior as before, but no more visitors for he apparently decided to do some venturing himself. Flew down a few feet away, then started to walk and run through the neighborhood, passing quite close to a number of gulls, and coming particularly close to the females of these pairs. This running & walking was done in M. Twice, when he neared (2 different ♀'s) to reach a particularly durable female, he went up into O and gave L-C (perhaps tinge of L) and then HF. No response from the ♀'s. The walk went on two more "fishing" trips, but each trip was ended by attacks from annoyed neighbors and/or outraged husbands — so the ♂ went back to his little knoll.

♂ gone 9:15. I am going for breakfast. Back 10:45.

Canceled a few notes about the above incident.

♂ sometimes gave LN from a semi-M posture rather than the usual one.

I think one can deduce the faint outline of a "usual" Greeting Ceremony. At its most complete in ♂ it might be O-(L)-(V+HF)-M + side to side head-turning - T-ing from M (thus the T'ing would seem to appear at an unusually early stage in this species). In the ♀ it might be O-(L)-(HF)-(V+HF and/or SS). This must be checked if possible.

The G's before attack) have seen as yet my retrolexid - but bill is definitely opened long before the delivery of the actual blow. <u>These G's often look like silent LN's</u>, often accompanied by pre-attack postures or aggr. V.

modestus, Nov. 21, 1955, V.

The sound of the "rattle tone" LCN, without the "rattle tone", could be transcribed as "heyan".

The apparently unmated ♂ I watched earlier this morning was back on his small temporary quarry, giving LCN's toward flying birds. (Checked on these. They do seem to be "hostile" patterns definitely directed toward flying birds — rather than expressions of frustrated sexuality.) One bird landed about 2 ft away. ♂ (let us call him A) did O, then V, then attacked newcomer who had just stayed in V.

Perhaps A already has an attachment of some sort. He suddenly woke up from a doze. Went into M, ran to a bird about 1½ ft away, did V+HF, M, M+HF, M, M note, M+HF, M etc. The other bird just looked at him blankly from V. Then A flew off on circular flight. He didn't look as if he were having too much energy.

* comm. area field 10:45

(10:45) V. V during escape V during escape V-G before attack - V after attack - bird in V attacked - V after being attacked V after attack - V after being attacked. V-G before attack Gort after attack V.V.V. V before attack - V 55 after attack - pr

M is very common by one or both birds of pair during short rushes at neighbors which appear to be low-intensity or "muffled" forms of redirected hostility provoked by mutual pairing behavior.

Bird, apparently A, lands beside another some distance from his territory. Does a couple of LCN's before landing, changes to M notes before he lands, then does M+M note immediately upon landing, then M+HF - M - M+HF - M - M+HF - M, etc. Other bird just looks alert and runs away.

Even though A may be semi-territorial, i.e. defending a territory from time to time, he is also gone from his territory from time to time, and I suspect that he is usually displaying in some other part of the area during these away periods. (I know he is in some cases.)

The early pairing behavior I have seen so far, is remarkable for its variety. Confirms a certain impression of "fluidity" in behavior already conveyed by variations in the LC performance. This species appears to have quite a remarkable range of innate patterns upon which it can call in situations which are apparently similar. The species appears to be more "fluid" than other gulls I have studied

moderates, Nov. 27, 1955, VI.

Another complete L.C by bird gliding near me.
Aerial LN can certainly be given by birds either gliding or beating wings
Doesn't appear to affect the method of flight at all.

Actually, the complete aerial L.C. is not too infrequent. Probably more frequent than in the Herring Gull – in comparable circumstances.

♂ O-T-V-T-V-qT-V-T-V-pk. O-HF-V-HF-V-T-gort. T-T-T-T. V-pointing bill toward partner – V-T-T-T-T-T-T-T-T-T-V- O-T-HF-T-V M-T-T-T-T

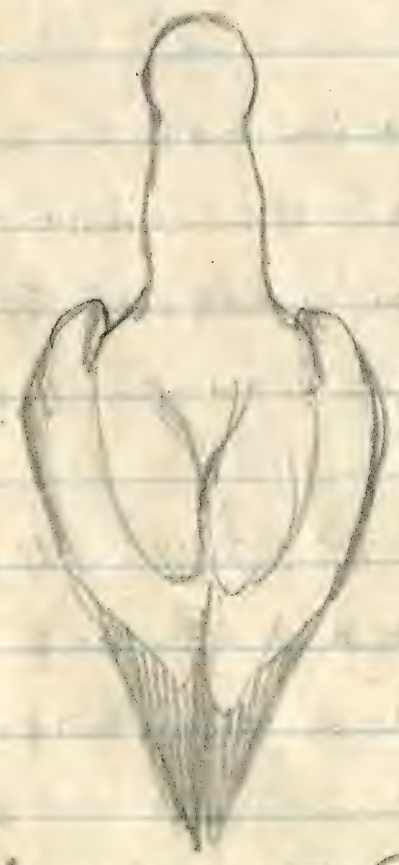
♀ V.V. V. V-HF-V-pointing bill toward partner – V V, M. O-L-V. V-pr.

comm. grea. fwd. Agg V before attack – Agg V after attack Agg V before attack V during retreat O-L-HF V.V. V.V. V before attack V before attack M-V.

Three or few birds in completely immature plumage, (i.e. juvenile), in this group; but they are scarce and apparently completely inactive

△△ ♂ M-T-T-T-T-T-M, ♀ nothing. ♂ V-HF-V-T-V, ♀ V-HF-V

One bird landed beside another, not its mate, did O-L with large mass of food in its bill and then ran off & swallowed the food!!



Back view of extremities.
Wing-tips not used, literally touching ground,
(this is rare, perhaps very rare) Tail invisible
Looked for too symmetrical to be true.

Leaning 12:40 Everything has been asleep for hours Beach 3:15

♀ O-HF-V-gort-V-O-HF-V M-HF-V-HF-SS-V-gort-V V-HF-HF-V.
M+M note – M+M+M note – V-HF-V-pk. V-gort-gort. V-HF-V-HF-V-SS-
Agg V-V-pk-V M-V-HF-V-T-T-V. Ch. – Escape V-HF-V.

△△ ♂ V-HF-V-T-V, ♀ V. Inconspicuous, ♂ V-HF-V, ♀ V

Modesto, Nov. 27, 1955, VII.

Might stress one pattern included in an earlier count of ♂ behavior ♂ did O, parallel with partner, then pointed bill toward partner at end of O — just when I would expect HF

Note about orientation of the L C performance toward partner. Two main types, face to face, and side by side facing in the same direction, with all sorts of intermediates. HF, of course, only occurs when birds are more or less side by side; but I think that T after O and L can occur with any sort of orientation.

About the orientation of other hostile & sexual displays — I think that their orientation is perfectly "conventional", i.e. like the corresponding patterns of most other quills, unless noted otherwise above

In spite of my earlier impression, at first glance, that the condition of the U in this species (i.e. "unsplit") might be "primitive", i.e. very little ritualized, I now believe that it must be thoroughly & highly ritualized. Otherwise one would expect a great many more of the Agg variety.

♂ M-HF-M-gost ♂-L-HF ♂-L-HF-M-HF-V-SS-V-pk-V. ♂-L-pointing bill toward ♀-M-T-M-V-HF-HF-V. ♂-HF-V-pk. ♂-M-V-pk-LCN-LCN-LCN-LCN-M-V

All C, as might be be expected, usually given in the air, but occasionally on the ground. Can confirm what I said earlier about the actual syllables themselves sounding like large Lowe — this certainly the usual condition. Occasionally they sound a little more like Hydrocoloeus, but never so much as the All C syllables of behchori.

There have been several major Silent Pauses already this afternoon. One, a very long & repeated one, was apparently set off by a Whimbrel flying past very last

* common field V before attack - V after attack - bird in O attached - V after escape. LCN LCN V. LCN V before attack - V after attack - bird in LCN attached V - O before attack - V after attack V before attack - V after attack V. V. V - LCN, V - O before attack - V after attack

▲ LCN-LCN-LCN LCN LCN LCN LCN. O. O.

♂ making repeated M notes during copulation. Bill opened slightly with each note (This is good supporting evidence for my classification of calls. The M in this species is a muffled low-intensity rhythm sound, the low-intensity form of both "Ch Call" & "Cop Call", which are muffled high intensity rhythm sounds

modestus, Nov. 27, 1955, VIII.

Have seen one case of apparent attempted rape in which the assaulter was deputy, the ♀'s mate

* rosum area, field

M before attack – M after attack – M before attack – M after attack ♂ before attack V-G before attack – V after attack V-HF after attack V-G before attack – V after attack – pk. M + M note. M during attack – V after attack – HF – V

The more aggressive M's, those connected with actual attack, particularly on strangers, are not as low as the more "usual" M's. Horizontal rather than bill to ground

♂ M – T – O – HF – V – HF – T – agg V – V – T – T – T – agg V – V – T – T – T – V – pk – pk – V
M – V – HF – M – T – T – T – T – T – M – T – T – T – T M M – HF – V – T – M – T – V – HF – V – T –
V – redirection attack – M

Extreme T from H

Relatively very rare

One can almost always tell when a copulation attempt is going to take place – long before the event. An attempt almost always takes place when one or both partners gives a really long burst of T's, and this is almost the only circumstance in which such long bursts occur.

△ ♂ V – gest – V. ♀ Ans. V – V – redirected C – redirected attack !!

♀ displayed to one ♂. Shrieked O – M bummers, then V + HF, circled around ♂ in M, etc. ♂ did little beyond V + HF. Then another ♀ some distance away did O bummers, ♂ rushed to her, in M, mutual V-HF, ♂ immediately attempted to copulate, ♀ resented, ♂ off, birds stand together in V. This was apparently a case of an unmated ♀ soliciting a mated or slightly mated ♂.

The V's given by ♂'s ♀ during pairing are rather short-necked. Head appears large because the back of the head is slightly "swollen", i.e. feathers must be raised

modoctus, Nov. 27, 1955, IX.

♂ O-L-T-HF-V-attracts ♀. O-L-T-HF-V-SS-V V. V. V-HF-V-redirection attack V-attracts ♀-V gest. V-MS-HF-V-gest. O-L-T-V-MV-HF-V O V. V. V.

♀ O. V-SS-V V. V. V-HF-V V. gest. V. V-HF-V O-L-T

♂ alone, doing LCN's at flying birds. Then O as ♀ lands beside him ♀ in M, stand beside ♂ a few seconds, while he does M+HF. Then the ♀ runs to another ♂, who is advancing her mate, and has lengthy display with him!

There is no doubt that M has "taken the place" of H, to a very large extent in this species, and it also seems much more intensive than the H of Ring-billed Gulls.

O is accompanied by a sudden raising of the carpal joints — away from the body. Drop back to their usual display position, (i.e. just visible), as soon as all stops & O drops. This is the only display pattern in which I have seen such raising.

♂ V+HF; ♀ V+SS. ♂ V; ♀ V HF+MS. ♂ ♀ both V. Both V+HF.

Notice ♂ in V with ♀, with eye half shut.

comm. area, field. Chafing being attacked

The bird that did Ch after being attacked, sat down (i.e. squat) to do so.

Have noticed several other copulations with M notes, as well as several with Ch notes, or even loud "Quirk" notes in Ch rhythm which may have been interwoven with between real Ch and LCN's.

One adult ♂, in complete nuptial plumage, displays with a ♀, complete display (including O complex, V complex, and M's). Then another ♂ comes up, V-HF-V toward ♀. Then second ♂ goes about 2½ yds away, goes through complete display with another ♀. So the pair bonds are entirely far from strong yet in all cases.

I think that, although T'ing seems to appear comparatively early in the pairing process in this species, it really occurs during these brief "selecting" or "courting" encounters between birds that have already formed pair-bonds with other

modestus, Nov 27, 1955, X.

Birds on ground do LEN toward me, i.e. a potential predator.

Apparent exception to the preceding statement is an actual case of pair formation ♂ runs through colony, in M, giving repeated LEN's, steps and does O-L-HF+T (these last two almost simultaneously) beside two different birds. In addition, two other birds are passed deep O to him — which may well have been invitations for all I know.

You know — there is surprisingly little passing hostile display by birds on ground toward birds in air. I wouldn't be surprised if the overwhelming majority of these displays I have counted were "invitations"

Mass panic c. 30, set off by dogs. Looks as if birds are leaving for the night, leaving myself.

Several long-drawn "waaaah" notes by birds flying over me during a period of relaxation in the panic. I think there must have been PLC notes, but they were not accompanied by particular movements or postures — just flight with ordinary wing-beats

*Time spent watching comm. area in field: 6:05 — 8:45, 10:45 — 12:40, 3:15 — 6:30

November 28, 1955
Antofagasta Bay.

modestus

Arrive 6:40 a.m., field

♂ M-V-HF-V. M-O-L-HF-V. M-O-L-HF-V. M-V+HF-V-pr-pr. V M-V LEN. LEN-LEN-LEN-LEN-M-M+HF-M-M+HF. LEN-LEN-LEN-LEN-M+HF-V-LEN. LEN-LEN-LEN-LEN-M-V-LEN-V. M-V-pointing bill to partner-HF. V+HF O-L-HF-M.

♀ M-V-HF-V. M-O-HF-V. V-HF-V-escape. V-O-HF-V. V+SS. O-L-HF-M-V. V. O-HF-V. O-L-HF-V-M. M-V+HF.

△ △ ♂ V; ♀ V+SS. ♂ V+HF, ♀ redirection attack on neighbor, V-pr.

♂ in incomplete nuptial plumage, does M-O-L-HF-V toward one ♀, who does V-HF-V back and then retreats precipitately. Then ♂ runs in M to another ♀, does V-HF-V-pr-pr, and then ♀ then V-O-HF-V. In other words, another probable case of pair-formation

moderitus, Nov. 28, 1955, II

Should stress the fact that my counts of ♂ & ♀ behavior include relatively few patterns shown during very early pairing stage "greetings". These are mostly patterns given by well-mated birds.

There have been several various silent Pewees. Some so common that they weren't even silent, as birds gave LCN's ("rattle") as they went up, and continued them in flight. During one of these pewees, I heard several "Wa-ah-ah-aaa...." notes, apparently Pee. I couldn't see any signs of mooping or roosting, so these notes must have been given by a "normally" flying bird. (Incidentally, I wonder if the "LCN's without rattle underton" I have been hearing from time to time might be intermediate between real LCN and Pee. The real Pee is "clear" too. And I have never heard a "clear" LCN by a bird on ground — except for those apparently transitional to M notes). The fact that these Pee notes occur during pewees, in conjunction with other evidence, would suggest that there is a high intensity pattern, relating aggressive — but not overwhelmingly so — just like the Pee of T. erebus's Quell, in fact.

I saw a great deal of redirected aggressiveness by various pairing birds yesterday. Usually, but by no means always, by ♂'s. This obvious aggressiveness makes it easier to believe that the M, LCN, etc. patterns, so common during mutual displays between mates, contain a strong attack component.

I have always been aware that birds of many species of gulls tend to give LCN's before flying up. In some cases, these LCN's were obviously aggressive or hostile in some sense, but in others they appeared to be more problematical. Still evident all LCN's before flying up in this species appear to be due to "frustrated res".

Hummingbird, both HAT. ♂ ✓ & HF; ♀ ✓. Both ✗ & HE-✓

♀ does M & LCN and then M note as her ♂ comes into level

♀, resting ♂ cop. attempt after ♂ has mounted, falls upward and away.

But in this one particularly case, obviously tries to catch ♂'s bill in bus. Is this a persistence of FB?

Modestus, Nov. 28, 1955, III

A is back 6:45. On his knoll. Alternating bouts of preening with LCN's at flying birds. Quite clear, well-directed and well-orientated. Then definitely gives LCN's as reply to LCN's of bird flying overhead. This latter is definitely not his mate, as it lands & joins its own mate far away.

There is another bird near A, on same knoll, doing same thing! No reaction between it and A.

Then A joined by a ♀. (As usual, I missed the approach!) A does O-L-HF-V-T+HF (!)-V-T-V-T+HF. ♀ does V, possible trace of HF, then walks away to join her own mate, about 10 feet away, from whom she begs mutually!

* comm. ova field. 17:00. V-O before attack - V after attack - M - M+M note before attack - M after attack. V-LN-V-pN-pN-V-cN-V-M during attack - V after attack V during retreat V+HF after attack.

A lands beside another bird, does M+HF & slow side-to-side turning. The other bird, normally ♀, just looks alert, then moves away. ♂ relaxes, then LCN-LCN-LCN, etc. Begins to run through group in M. Runs parallel with a second ♀, who also begins to run in M. Then they separate, ♂ continues running in M (with occasional LCN's), approaches third ♀, does M+HF+SS to her. She just looks alert. ♂ stands, gives LCN's from normal LCN posture, then approaches fourth bird in M, does HF+SS in M. Then he moves behind rock so I can't follow any more.

Case of chasing without sitting down. Bill put to ground, but neither tail nor rear end of body put to ground. (Unfortunately, I only saw this "head-on")

♂ running through group in M. Stopped beside 2 different ♀'s, and stood there each time for several seconds in M. No response, so went back to running in M. Occasionally stopped running, and then came out of M, to give LCN's from usual LCN posture. Always back into M & running very shortly. Finally came to third ♀. Stopped beside her, did M+HF, M, T, M. ♀ in very tall V, then O-L-HF-V. This was apparently what the ♂ had been waiting for. He stayed

Rockerties, Nov. 28, 1955, III.

The female did a little running about in V, at least one T. ♂ followed her, usually in M, also did at least one T, normal PAC's, (apparently regurgitation intention movements. Pill shaken just after it is put to ground). Then both relax.

♂ M-HF-V; ♀ V-HF-V Inconspicuous, ♂ V+SS; ♀ V+SS. Both V-HF-V.

T note is a very soft, plaintive, moderately high-pitched sound. Some, at least, could be transcribed as "Chow".

* comm. area feed. V before attack - V after attack. V before attack - V+SS after attack - V. M after attack V. M-V. V before attack - V between attacks - V after attack. V before attack. Both V+HF-V. Both V+SS.

Can confirm again & again - there is a definite tendency for ♂'s to T from H more than ♀'s before copulation. By the way T now, and they are entering in H for now. Does this mean that the sex drive of ♂'s is relatively stronger than that of ♀'s at this stage? I think so.

Another complete L.C. by bird gliding near me, (this time glide was apparently not connected with landing. Bird flew on up, circled, and then landed.) I think it is safe to say that there is a "tendency" for birds to glide during actual L.C's. In other words, the glide is less stereotyped than that of Franklin's Gull.

♂ H-T-H V-HF-V SS-gr. V. V-gort-gr-V. Gort-gort-gort.

♀ V V H-T-T-H V. H-T-T-T-H-T-T-T-H-T-T.

Another glide with actual L.C. by bird flying near me. Definitely not connected with landing - bird leaving group.

T from M after looks very much like T of R & G.

The first part of the complete L.C. performance may also be of comparative significance in connection with various "tikatikatika..." calls of Sterna terns.

The ♀ often stands in V, does SS movements during copulation.

Leaving 8:40, birds already asleep for the most part.

Back 8:00.

moderates, Nov. 28, 1955, V.

I still think that the "Meow" aerial LCN (i.e. without rattle) may be transitional to PC. note, but it's much shorter, sharper, and (?) louder. It still seems to be given only (?) by birds flying near me.

* comm. area, field  M before attack - M after attack  M M  Agg V before attack - Agg V after attack
V before attack - V & SS after attack  M - gort V  V before attack - V & HF after attack
V. gort after attack - V - HF - V - pk V. V. V. V.

I think that there is considerable evidence that the L.C. performance (as a hostile pattern) must be higher intensity than the V complex & M. There is that the V complex, T, H, M, etc., occur frequently during all sorts of moderate - low intensity, more or less "friendly", encounters between the members of well-established pairs, and O and L are relatively rare in the same circumstances; while there has been at least one L.C. performance in all the vigorous "pair formation" encounters I have seen so far. (This does not include all the cases of ♂'s running through the colony in M — but then they sometimes get (if the birds are close together) almost no response from the birds they display to.) O-L never occur with FB or Cops.

The overwhelming prevalence of V's in this "communal" area is one of the few definite features in which this species resembles the "large Larus" gulls more than the atricilla gulls. Another is the pairing behavior visiting on foot.

There seem to be fewer birds around this afternoon. Does this mean that the colony is becoming more thoroughly occupied.

♂ O-L-HF-V. O-L-HF-V-T-V-pk-pk-V-LCN-V-pk M+SS. T-T-T O-L-M+HF-M-SS-M-T-M-V-redirection attack - redirection attack - V-pk O-L-HF-V-T-V. SS+V

♀ V M-HF-V-pk-pk. V. T-T-T. M+HF-M-SS-M-T-M-V-pk-pk-pk. V-HT-V-SS V. V. V. O-L-HF-M-HF-M O-L-HF-V. V. V-HF-V-T-V-V V-HF-V. M-HF-V

Should mention about my counts of ♂ and ♀ behavior. They don't include the displays associated with "normal" FB & sequence either. In one or two cases, I have included bursts of hostile displays associated with very hostile FB performances.

Bird gives fragmented aerial LCN's before landing. (When they are this fragmented they cannot be called "rattle" — they are really polysyllabic) Five syllables, and could be transcribed just like the Al C's of "large Larus" "Ha ha ha ha hah" — — — — — pitch & length

modestus, Nov 28, 1955, VI.

♂ V-HF-V-T-V, ♀ V-HF-SS-V. ♂ V, ♀ V-pounding ♂ V-SS-pt-pt, ♀ nothing

Today is also dull for another reason. There seems to be relatively less hostility between partners than on earlier days. Yet there is almost always display-ops into FB and/or cop. Also very little signs of pair-formation or early preening.

Much of the preening I have seen is certainly "ritualized" insofar as its occurrence has been selected for in the course of evolution. It is far too commonly associated with pairing to be coincidence in such circumstances. Sometimes interrupts the display, but more often marks the temporary end of a bout. (What does this suggest about its causation?). The preening I have been counting is hasty and/or unusually vigorous, (accompanied with obviously autoerotic preening), but it is seldom, or never, as "nervous" as the most extreme "nervous preening" I have seen in some other species. Nor is it at all "ceremonial".

Current question is the conspicuousness of the "running together in M" shown by mates 9 times out of 10 when they become widely separated. Sometimes preceded by L.C. Usually ends, when the birds are nearly side by side in M+HF-V, and then whatever display comes next. This "running together in M", followed by M+HF is occurring constantly throughout the colony at all times of the day.

♂ V-SS-SS-V, V. ♂-pounding + T+HF (one peculiar rotary motion) !! - M-HF-M-HF. M-HF-M-♂-HF-M-attacks ♀ - ♂ after attack - M-T-M-HF-M-T-M. M-HF-V-HF-M-HF-M-T-M. M-SS-SS-M-gdt ♂-HF-V-T-M-V-pt-pt.

Included in the above count is an incident, presumably early pairing, in which both ♂ and ♀ did two complete L.C's, by far the most L.C'ing, in such a short space of time, that I have seen. Looked almost like headed quills. This L.C.ing, in the case of the ♂, was alternated with M complex + approach gestures in general. But ♂ attacked ♀ (in a very "guarded" fashion) eventually, and the ♀ retreated. ♂ followed her in M, but each time he got to her, she retreated some more. ♂ eventually gave up and went back to the place they started from, while ♀ remained at spot she had retreated to (at least 30 ft away). Both birds relax and begin to preen.

modestus, Nov. 28, 1955, VII

* comm area field

V after attack V before escape - V after escape. V. V. V. V. V+SS V+SS V+SS. V before attack - V after attack - Bud in V attached.

♂ M-HF-V-HF-V-SS-pointing-V

When partners are separated, and calling LCN's to one another, they tend to orientate their LCN's toward partners, even calling over their shoulders in extreme cases.

♂ alone on ground. Giving LCN's, I thought, toward flying birds. Once O-L-M-LCN from M-M-LCN from M-M-LCN from M — then back to LCN's in the usual posture. Then a ♀ lands beside him. ♀ in very extreme V, plus numerous slow and "cautious" HF's and SS's. ♂ just looks at her coldly as usual - that posture. Then ♂ flies over to another ♀, does his V+HF toward her, alone, immediately and starts to preen. This was obviously a case of an "unmated" ♀ landing beside a mated ♂. Presumably she had been fooled by his "invitation" behavior — first as ♀ was. (This probably confirms the fact that I am interpreting this pairing behavior fairly correctly — I hope.)

Is this "cautious" V complex behavior by visiting ♀ typical of a ♀ who isn't sure of her reception? I think so. Presumably, if the ♂ had done L.C. & HF — M & HF, etc., she would have responded with similar high intensity patterns. And all this would probably have been accompanied by, or followed by, some additional T-ing as well.

I must say that I am somewhat surprised by the way in which a mated or unmated bird, when approached by an unwelcome "visitor", just looks the stranger coldly in the face. I have seen this at least several times. Granted that this is a more or less communal area, one would still expect a much more hostile reception. Certainly O & ♀'s in the same situation would be very hostile.

Another L.C. & Glide by bird flying away from the colony - the bird descended relatively steeply during the glide - looked almost like a low-intensity swoop — then rose a little with beating wings. This is the first time I have seen such a relatively steep descent.

Panico 7:00, leaving myself.

(156)

<u>modestus</u>

December 1, 1955,
Antofagasta, Chile

Airfield c. 10 a.m.

A few comments upon sound of some calls. The second part of the ground L.C. is relatively muffled & plaintive. Really quite reminiscent of the Kee notes of other species. It is certainly less "sharp" than the "kee-ow" note (without rattle) sometimes given by flying birds. Latter is not very plaintive. I am not quite sure how the second part of the ground L.C. differs from the "real" Kee notes I heard once given by a flying bird during a swoop. Is the second part of the ground L.C. "hoarser" and, perhaps, often more "grunting"??

comm. area field

V - V before attack - V+SS after attack - V before attack - V+HF after attack - SS - V. V before attack - V after attack V.V.V.V. AFF V before attack - AFF V after attack - V. V before attack - V+HF after attack V.V.V.V.V. V+HF after attack - V. V before attack - 3 V's between attacks - V after attack

One extreme case of ♀ doing extreme T, from V, during initial T with her mate. Quite as extreme a movement as anything I have ever seen in the Laughing Gull or Franklin's Gull


this appeared to be the most extreme angle

Still must be relatively rare

♂

V - L - M+LCN - V - FR. ♂ V - GAR - V - GAR - V - FR. V - L - M - V+HF - V - T-T-T-T-T-T-T-T-K-K-K-T-T-T-T-T-T - V+SS. V-L - V-HF - V-FR - V-FR - V V-SS - V - GAR - M - V-SS - V - redirection attack. M - V-SS - V-T - V-T - V-SS - V - redirection attack V-FR. V-FR. M - V+HF - V-FR - FR - FR - V-T - V-FR - FR - V-T - FR - FR - V. V-L - V-HF - V-SS - V. V-HF - V-SS - V-SS - V. M - V-SS - M - T-T-T-T-T

♀

Solitary ♂ (almost sure of sex) approached by ♂ (almost sure of sex) apparently mated to neighboring ♀. Approaching ♂ walks along in M. The approached ♂ does V - T - extreme V - attacks the approaching bird. This looks like a case of a <u>♂ soliciting another ♂</u>!! (The apparently purely hostile M's are usually running).

modestus, Dec. 1, 1955, II.

△△△ ♂ V-HF-V; ♀ V-HF-HF-HF-V. ♂ gort-V; ♀ V. Both V+HF

There are quite a number of attacks delivered without any preliminary display; but relatively much fewer than in the Herring Gull.

The ♂'s seem to be having considerable trouble regurgitating food for their females. There is a juv. Ring Bill who keeps trying to horn in whenever the food starts to appear (long before it ever reaches ground!).

○ ♂ O = advanced juvenal, or pre-cap. Indiancor. V-Gort-V-M-M+M note. M-T-V-T-T-H 18 T's from 1 H, + 1 HF. 1½ T's from 2 M's + 1 H. 1½ T's from H.

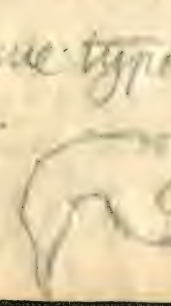
○ ♀ V-12 T's-V+HF-2½ T's-V-16 T's-V. 18 T's from 3 H's. 4 T's. T-T-T-T-V+HF-T-T-T-T-T-V+HF-T. V-SS-SS-SS-V-T-V-T-SS-SS-SS-V-HF-V-T-T-V-T-V-T-V-T-V-SS-V-reduction attack-V-escape-V-SS-V-T-T-T-V-SS-V-SS-V-T-V

Most of these birds are non-territorial, in the sense that they tend to stay and return to the same site (over a period of hours at least). But most of them show very little territorial defense, from the content of an approaching bird mainland its individual distance. It is entirely my impression that this species is much less aggressive than some others I have worked with. This may be due to the circumstances, (i.e. the fact that this is a semi-communal area), but I would be at all surprised if it were due to some relative weakness of the attack drive, perhaps even a weakness of the internal factors of the drive. The escape drive seems to be correspondingly weak. (But, I should add that this species does not convey the slow, indifferent, phlegmatic, impression that the Herring Gull or the Ring Bill do. It is quick and active).

The only really aggressive bird I have seen was A. He was defending a "real" territory, and he seemed quite as invertable, and as prone to redirect-ion aggressions, as most Franklin's Gulls and Black-headed Gulls.

△ ♂ V-HF-V-Ch-V+SS-gort-A-pi-V; ♀ V-HF-V-SS-V

The above Ch posture was quite the "normal" Laughing type. Body quite tilted, legs only slightly bent, neck somewhat extended, up + down head movements



Modesto, Dec. 1, 1955, III.

There is thus both a "normal" Ch pattern, and a Ch & Squat.

One rather unexpected aspect of the normal behavior of this species is the way in which the ♂'s seem to be much "hotter" than the ♀'s on the average. Once again I have seen ♂'s enticing ♀'s; the ♂'s in H with their constant T'ing, the ♀'s usually in V, with occasional T'o, many HF's and SS's and little retreats. Such ♀'s usually start to run away when ♂ tries to mount. (These incidents almost confirm Noble & Wiley's theory that the ♂ has to be dominant, & hold his head higher than the ♀, before copulation can take place. But I have also seen many apparently successful copulations in which the ♀ definitely had her head higher than the ♂ immediately before mounting!! Repeat — many — it is so common as to be perhaps normal. But such females are seldom or never in extreme V with many HF's and SS's).

Twice one sees a ♀ seemed frightened and retreated or flew off when the ♂ tried to mount; the ♂ slipped off immediately, and leaned across ♀, in semi-diagonal semi-M posture, giving repeated M notes.


Connec ♀a

(Later note: now this again seemed times, including times when ♀ tried to mount ♂. Seems to be usual when one bird wants to mount and the other won't permit it, and yet doesn't escape).

Many successful copulations are preceded by intense mutual T'ing, but the only times one sees the ♀ T at ♂ strongly and much more than ♂ is always "FB". Then one sees the ♀ doing many T's, often from H or semi-H, also may peck at ♂'s bill & chest, walking rapidly back & forth in front of ♂, or even around him, while the ♂ stands in V, with occasional HF's, gives low intensity indications of escape and/or reduction aggressiveness, does occasional Gorts, N's, and N & M notes, and finally does M & M note & requires

moderatus, Dec 1, 1955, IV.

There may well be cases in which the ♀'s sex drive is relatively stronger than the ♂'s, and her hostile drives (most significantly, the escape drive) are relatively weaker.

Correction to something I said earlier today which may have given a false impression. I have seen a number of other birds besides A which were noticeably aggressive, but A was the most extreme case. Actually reduction attacks are fairly common during early pairing.

Well! Well! Well! Two birds, obviously pair, walking around one another with, with many T's, (some CD in each case). Then one tries to mount other. Walked around with, still T'ing, with belly feathers fluffed!


Occasionally up into V, making low-intensity mounting movements, leaning neck over partner & uttering M. Then stands in V, raises & waves wings, fluffs out all feathers as during copulation, utters a few notes of Cop Call. Makes some more attempts to mount. This was definitely the ♀!! The ♂ just attended, in H, whenever ♀ tried to mount, then continued T from H. ♀ finally copulated twice on ground!! The ♂ just stood & looked! Then the ♂ mounted the ♀ very rapidly, without any preliminary displays. ♀ ran away in V before he could begin copulation; and then both birds walk around in V + HF + SC. Relax & start to preen.

Pair flying, ♂ in front of ♀. ♂ utters definite M note in air. Then pair land. ♂ goes into M immediately and mutual display occurs.

Now just heard several other M notes by flying birds. There were four bird flying 15 or 20 ft apart. Then birds didn't land.

* comm. area, field

Na after attack. Qo't between attacks - V + HH after attack. V.V. Aa? V before attack - V after attack. Aa? V before attack. V after attack - bird in V attacked the T's from H's, & M's.

○ ♂

○ ♀ V-T-V-SS-V-T-V-SS-V-T-T-V-SS-V-T

moderates, Dec. 1, 1955, V.

* comm. area, field — LCN-LCN-LCN-LCN - Qott during attack - V after attack. V during retreat - V V V V. V before attack - V after attack. V before attack - V after attack.

The pre-cap J's of ♂ and ♀ are often rather well synchronized

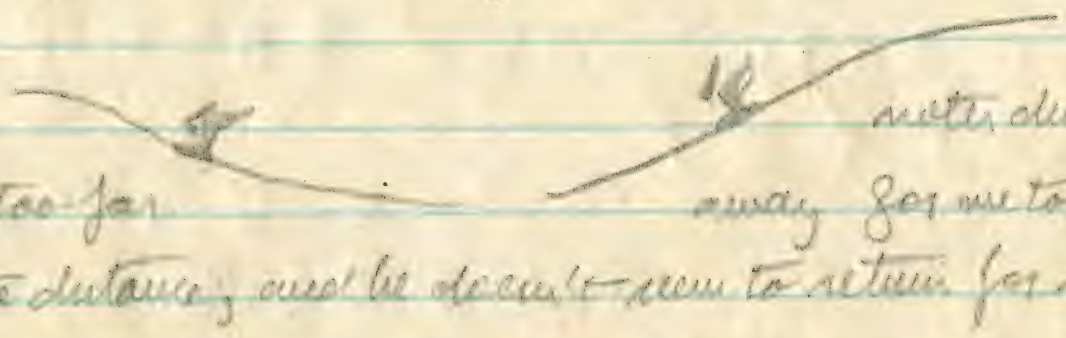
♂ Qott - V-SS-V, ♀ V-SS-V.

There are certainly as many birds here this morning as there ever were. The rattlesnake can't be any more "occupied" than the day I arrived

Leaving 10:00. — birds generally asleep. Back 4:40.

Another normal LCN by bird flying near me. With glide again.

Then notice a bird, ♂, flying around with fast and deep wing-beats, slightly buoyant flight. Uttering PCC notes. "Ooooo-ow" "Kuooo ow-", long drawn - but not particularly plaintive - less plaintive than the usual part of the ground LC. Thus bird lands, and it is obvious that he is pairing. Runs around in M. Gives several LC's, O - digit L, then V. Each time he gives LC a ♀ runs toward him (same female each time). She runs in M, gives HT from M when she gets near him. ♂ stands in V as she reaches him, then rushes off in M again, gives another LC again when he gets 15 ft or so from the ♀. She approaches in M again, etc. etc. Repeated at least 3 times. Then ♂ flies off again, swift flight with deep wing-beats; a good deal of twisting & turning & circling, but not rapidly enough to make it really "Erratic". Call high pitched about as extreme as the "semi-Erratic" flights I have sometimes noticed in the Silent Pauses of the species. Gives repeated PCC notes, clear "Recow" LCN's, and all sorts of intermediates, all very rapid and all sorts of intergradations (Clear evidence, I think, that "Recow" LCN is closely related to the PCC). Flies far away, still circling, twisting & turning. Finally does shallow-gliding swoops & soars.



Probably gave PCC notes during these swoops, but he was too far away for me to be sure. ♂ finally lost the ♂ in the distance, and he doesn't seem to return for several minutes.

Another anal LCN with glide. Bird far from me.

moderates, Dec. 1, 1954, VI

There is little doubt now in my mind that "Prism" aural LCN is higher intensity than "rattle" aural LCN, and that the PCC is higher intensity still. Both probably contain both strong attack & escape, i.e. accounted with both, mixed and Silent Pause — given by ♂ during early pairing stage)

♂ O-T-U-pr LCN-LCN-LCN-LCN-O-HF-U-T-U+HF+SS+T+SS+HF-U-pr-U

♀ O-T-O-pr-U-pr O-L-T-U-LCN-M-HF-M U+HF+SS+HF+SS U-pr-U-pr-U-pr-U

O ♂ 95 T's from 2 M's, 5 H's, 3 HF's, 1 U.

O ♀ 104 T's, plus 2 H's, 7 U's & HF's. End all counts 6:00

Another bird, probably ♂, giving PCC notes during little circular flight in course of pairing. Usual, un-emphasized, flight, no stereotyped or unusual gestures or movements. This time the PCC notes were alternated with "rattle" LCN's.

Have seen more and more glide with aural L.C. Most of them given by birds near me. Does this suggest that the aural L.C. is more or less aggressive than the aural PCC and related patterns ???

Now miscellaneous pairing behavior. First of all, an apparently unpaired, either small ♂ or ♀, going from place to place in the colony. Visited eight places, 2 of them twice, thus 10 visits in all. Made sense of them on foot, either walking or running in usual locomotory posture, or walking or running in M. 3 visits flying. Gave constant rattle LCN's when flying, a number of rattle LCN's when walking or running. Sometimes stopped at a place not very near any other birds; then stood, giving many repeated LCN's, going into semi-droop posture for each LCN. Noticed that the feathers of the nape and upper neck were slightly ruffled, giving slightly conical or egg-shape effect during LCN's

(These ruffled feathers looked rather like grey velvet) Once gave O between LCN's. (I think the feathers were also raised during this O, and all or most of the O's of other birds that I have seen. This seems to contribute to the peculiar gestalt of the O of this species. Looks long-necked for several reasons. Neck is thickened, and nape feathers raised, so that head looks small because not separated by visible

madeira, Dec. 1, 1955, VII.

demarcation from the rocks. Same thing true of L & M. Thus the "egg set" is present at least in the usual forms of V, O, & all low-oblique-sounding pairing [it is possible that it is not so-conspicuous during the forms of the same patterns, particularly the forms of V, even during friendly hostile encounters between "territory owners" and neighbors or intruders]). Then went to places where there were other birds, one of which was definitely the ♂ of another pair. Did M-HF to this ♂, V-HF to the other bird. The ♂ of the pair just attacked the "inviting" bird, the other bird just looked coolly at the "inviting" bird. The inviting bird finally went to an 11th place, where there was still another bird, possibly ♀, did V-T-HF and relaxed.

This appeared to be a case of a semi-mated bird playing the field while ignoring its mate for a while.

Then pairing ♂ landed, ♀ landed beside him almost immediately. Both birds V-T-V+HF-M-V-M-V-M etc. ♂ flew off, landed, gave LCN's. Then ♀ flew to join him, landed some distance away, walked to him on foot. ♂'s greeting was O-HF-V complex. ♀ just did V complex. ♂ flew off, ♀ followed.

Want to try to organize my thoughts about the pairing displays, even though it will be repetition of a lot of stuff I have written before. There are obviously 3 main elements: a) V complex, b) M complex, and c) LCN-O complex. How to take them in some order... 1. LCN is always, or almost always, confined to situations in which the mates are separated or an apparently unmated ♂ is displaying by himself. The isolated bird gives repeated LCN's (most frequently and vigorously given by the ♂ even in the case of mated pairs) "calling" a potential mate or the actual mate to its side. O's and O-L's are occasionally interpreted with these LCN's — appears to be a higher intensity form of the LCN's. LCN's never (I think) occur after the mates have reformed one another or a ♀ has come to meet an unmated ♂. O's and O-L's do, however. They are then either the initial "greeting ceremony", or follow quickly after a brief V complex or M complex. Very seldom occur during the later stages of elaborate series of greeting displays. The O's and L's that occur

as greeting are almost always combined with HF movements, sometimes combined with T's. 2. and 3. M complex and V complex are much more closely connected. Sometimes appear to be almost interchangeable. Both M and V can be used by a bird moving through the colony in an "invitation" walk or run, but the M is very much commoner than the V. Both M and V are used as "greeting" when ♂ & ♀ come together. The M usually appears first, or, at least, is concentrated toward the first part of a series of greeting displays, (it is often particularly conspicuous, for instance, when ♂ & ♀ run toward one another just before or at the very beginning of "greeting") The only times M's are usually conspicuous toward the end of a series of greeting displays is when the greeting is followed immediately by pre-copulatory behavior. Greeting M's are usually silent. The "usual" order of succession of M's and V's, in conjunction with other evidence, would suggest that M is higher intensity than V. Both V and M are usually accompanied by HF and SS movements. Such movements are probably, however, commoner with the V. Both M and V are frequently accompanied by T's (much more frequently than O or O-L), but again I think that such movements are commoner with the V (at least in the case of ♀'s). The V's are very frequently accompanied by rapid and vigorous preening movements, movements which are certainly "significant", i.e. "displacement". The only other movements occurring with M & V that appear to be significant are "pointing" and Gorts, and I really don't know what can be said about these.

The whole of the non-aerial courtship behavior of this species is reminiscent of the Laughing Gull as described by M & W. Much of the V complex appears in similar form at similar times in the two species. Some of the V complex of the Grey Gull is comparable to the "pairing charge" of the Laughing Gull. Most important, however, much of M complex is strictly comparable to both the "pairing charge" and the "feeding charge", and in addition, of course, the M & M note is strictly comparable to "feeding

charge + see moan").

Leaving 7:00 p.m.

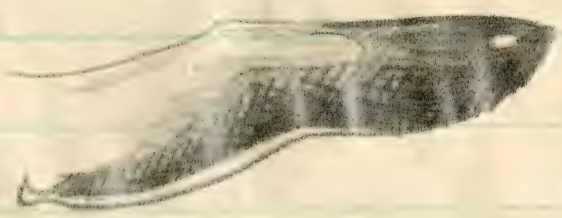
December 1, 1955,
Antofagasta Bay

dominicanus

Have been watching a number of Kelp Gulls very carefully in the intervals of watching Grey Gulls.

There are often quite a number of these birds around (up to 15 or 20). More than a third are juvs. A few are almost adult. The rest are adult in apparently full nuptial plumage.

This species looks like large, heavy-bodied Herring Gull. Small head, heavy bill, large and long body, but not very long primaries. Bill is usually bright clear orange yellow. Inside of mouth yellowish. Legs vary from greenish yellow to rather bright orange yellow (with slight grey wash as in Ring-bill). Underside of wing quite striking; strongly black & white.



Most of the adults are obviously partly mated already, but I have caught a few obscure glimpses of early pairing aerial "writing" like that of Herring Gulls in Virginia. One mate joining the other on ground, and then M.C. Bird on ground does L.C. before mate lands, then mutual U + HF.

Now for the various patterns (all adult unless otherwise noted).

Voice of this species is noticeably deeper than that of Herring Gull, and, surprisingly enough, "hoarser". This is particularly true of the L.C. and L.C.N. The M and T calls sound much more like those of Herring Gull. In any case, I think that all the sounds I have heard so far can be transcribed in the same way as the corresponding notes of the Herring Gull

dominicanus, Dec. 1, 1955, II.

Aerial LCN's are quite common, although perhaps less frequent less frequent than those of Belcher's Gull. Deep, short "Kaow" or "Kloo" sounds. Given from the usual winter gull postures.

Ground L.C.N. sounds the same. Sometimes given from semi-V or semi-O, but more often accompanied by brief HD movement or intention movement, (just like Ring-bill)

Complete L.C. only heard on ground. Given from semi-O-HD-O, or, more frequently, from HD-O. Many notes, each one obviously only a slight modification of LCN. One or two introductory notes with semi-O. I don't know how many notes with HD. 6-7-8 notes, getting weaker toward end, and slightly shorter & deeper in pitch, with O. HD posture much like that of Herring or Ring-bill. O much like that of Herring.

quite low. L.C.'s given toward flying mate. Also toward strangers or intruders who come too near, (particularly on some of the smaller shorelines — the only places where there is sometimes a brief indication of "real" territorial defense)

Juvenile LCN's, which are occasionally given by flying birds, sound just like those of related species, but again on deeper & hoarser

M notes are quite frequent & loud. Apparently intermediate in frequency between those of the Herring Gull and the Ring-bill. Apparently always directed toward the mate (always by the ♂?); or, at least, given when the mate is present. Given from M or regurge (i.e. head to ground) postures. M notes given by both birds in air & on ground. (I haven't caught the aerial postures accompanying M — perhaps it is only given by birds about to land). M note itself is a plaintive, long-drawn "Kee-ow" or "Oooo-aaaah" — or —

T and F-B patterns like Herring Gull. Have seen only one regurge by ♂, and this was silent

The V patterns also seem to be just like Herring. Has some

(166)

dominicanus, Dec 1, 1955, III

sort of "aggressive head-set", with bill pointed almost vertically downward, pressed to get against perch.

I haven't seen any trace of ritualized aerial patterns or movements, or anything like a pursuit flight.

December 2, 1955,
Antofagasta Bay.

modestus

Arrive field 6:07 a.m.

Passing a pair of birds who don't fly up, even though I pass by within 10 feet of them. They both just stand in "alarm posture" and give Alt's. The important thing about this incident was the fact that some of their Alt's were more than Tri-syllabic — one, at least, contained five notes. All notes accompanied rather than the usual ACC notes by flying birds.

♂ M-HF-HF-M-U-HF-pk U-HF-pk M-U-T-U-T-U-T-U+HF-T-U+HF-T agg U-U-agg U-U-M-U+HF agg U-reduction attack M-U+HF-U-M+foot-U U-HF-pk M-U-HF-U+HF-U-M-U+HF-M-U+HF-M-U. M-U+HF-U-M-U+HF-U+HF-M+HF-U+HF-Goo-U+M+HF-U-reduction attack 9 T's from H.

♀ Flies attack - Flies after attack Flies before attack - Goo after attack Goo U during retreat Flies attack - Flies after attack U-Flies attack - Flies after attack - LN-LN-LN-LN-LN-U-SS Flies attack - U+HF after attack

* comm area field

♂ 48 T's, plus 2 M's, 1 E H's, 6 U's, 10 HF's, 2 SS's, 3 Goos, 1 PAG 17 T's from 1 H. 6 T's from U 14 T's from 3 H's, 1 HF

♀ 46 T's, plus 1 M, 1 H, 16 U's, 12 HF's, 6 SS's, 2 Goos, 14 T's, from 5 U's, 7 HF's one reduction attack on neighbors!! 6 T's from U 12 T's, 1 U, 1 HF.

Moves now glider with aerial L C's.

Passing a little behavior ♀ of pair rushes up to third bird, does M-U+HF-U. Third bird does U+HF-U. ♀'s mate rushes up to other side of ♀, does M-U+HF-U ♀ U+HF-U. Then all three birds are standing in U — then ♀ attacks third bird

Moderates, Dec. 2, 1955, II.

♂ V+HF - M - Gort - V+HF - V - LCN - LCN - LCN - V-L-T - M - V+HF - V V-HF-HF, V - M+M note - escape from ♀ - V. V-L- V+HF-HF-HF-HF-HF V-T-T-T-V-pr-pr-pr. V-HF. V-HF-V-T-V-L-HF-V. M-V+HF-V-T-T-T-Gort (15 T's)

An apparently aggressive form of V flat forehead and definite crested appearance.

The calling of LCN's by ♂'s separated from their ♂'s appears to be quite effective. The ♀ often responds immediately.

Noted that a bird rushing to attack in V-C had smaller egg-shape head & back of neck

Pulling forward to attack with wings raised

This is one of the few times that I have noted a definite egg shape in pinch hostile encounters, (although it may be not uncommon), and it suggests that the egg-shape is related to aggressive

♂ Gort - V+HF. ♀ V. ♂ V-LCN-LCN-LCN-V+HF; ♀ V+HF

♀ V+HF M-V+HF-V. V-HF-V M-T-T-T-T-T-T-T-V+HF-V-escape-V-escape-V-Gort-V

Have again seen "crested head-vt" by aggressive bird after attack. Thus, it may be not uncommon, but I don't think that it could be called "usual".

♂ M+HF-V+HF, ♀ V+HF

Comm area field

LCN before attack - V after attack - LCN before attack - V after attack - V before attack - V after attack V+HF after escape - HF V+HF after attack - V V+HF after attack. V.V.V V drawing attent. V.V.V-pr. V drawing attent

The C's before attack often look like silent LCN's.

The "hump" accompanying wing or all extreme M's often looks like the hump occurring during regurgitation. But of course it has nothing to do with regurgitation, now at least, in the hostile M's and apparently not in the "greeting" M's. Seems to be a case of "mimicry".

Another case of pairing as before ♂ walks through group in M Does

Woodstock, Dec. 2, 1955, III

extreme V-HF to one bird, which quickly runs away (in slight V). Then ♂ stands a minute, giving LCN's from semi-V. Then runs on again to another bird, presumably another ♀, does V-HF again. This bird responds by giving V-HF back. ♂ quickly does T-O-L-HF-V-T etc. The ♀ gives an LC performance and gives various V complex displays. This was obviously a case of a ♂ soliciting one ♀, getting the wrong response, and then going on to solicit another ♀ and getting the right response. What exactly is the right response??? Certainly part of it is V-HF. Do ♀'s tend to give T also as part of right response??? Perhaps, but I don't think always or even often. Must check on this!! An LC is often part of the right response, but it isn't the very first part. I am becoming convinced, in fact, that the LC is almost never the initial reaction of either bird during an early pairing greeting — provided that the real greeting doesn't start until the birds have come close together.

Some regurgitations by ♂'s, although done from M posture, are not accompanied by M notes. Just now one case particularly clear. The ♂ showed no signs of redirected attack or escape behavior. Began T'ing immediately after feeding the ♀. The ♀ then became anxious and retested precipitately several times. All this suggests that the ♂ didn't give M note unless he has fairly strong hostile motivation; i.e. M note is produced by attack and escape drives (relatively stronger than those responsible for producing simple M without call).

Morning 9:00 a.m. Back 2:25 p.m.

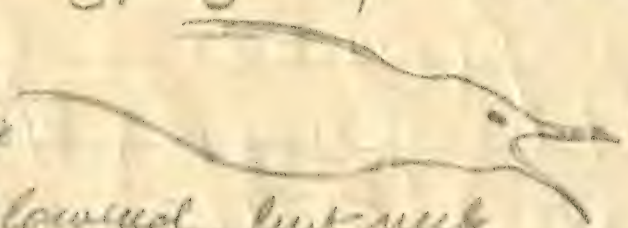
♂ in extreme V & SS when ♀ hops from him. His eyes are almost shut, presumably shutting out the bright light. But then he opens them wide when he turns to female and goes into M.

♂ T'ing beside ♀ from semi-V. Notice that each time the ♂ comes out of the T, into the semi-V, he is "crested." ♀ does nothing but stand in rather awk. V. ♂ then attacks neighbor, stands in extreme V, quite agg. for this species, bill

Modestus, Dec. 2, 1955, IV


down & "crest" raised, after attack.

When giving LCN in flight, the lower bill appears to be greatly lowered, and the upper bill appears to be only slightly raised. This is presumably partly an optical illusion, but it must reflect something real.



Usual LC also with bill wide open, lower mandible prominently lowered, but neck is stretched further, still straight forward. Still appears to be little ritualized.

* corner area field

♂ - C before attack - V after attack V before attack - V after attack - N after being attacked. ♂ C V ♂ Qg, V before attack - Qg V after attack V before attack - V after attack. N before attack Qg V after attack - V & HF

♂ 110 T's, 10 H's, 10 - L, 16 HF's, 3 M's, 8 V's, 3 reduction attacks on neighbors, 1 Qg, 4 pr's. N & HF - V & HF - T - T - T - T - V - N & HF - V - HF - N & HF - V - HF - N - HF - V

♀ 119 T's, 18 H's, 1 V - L, 16 HF's, 1 M, 8 V's, 3 reduction attacks on neighbors, 1 escape, 1 Qg. V - HF - V - escape - V - V - L - HF - V & HF - V - escape - V V - L - V - HF - pr.

Waltzing pairing behavior between the members of an intending pair. Greeting as usual, then both birds begin T'ing quite vigorously. I expected a cop. attempt at any moment. Each bird made 3 reduction attacks, with more T'ing in between. The ♂ made no attempt to mount, but made repeated regurge int. movs. and finally actually regurgitated. All this conveyed the impression that the ♂ (and also, probably, the ♀) had a strong sex drive, but the remaining hostility was so strong that the ♂ simply couldn't bring himself to mount, and thus regurged instead. Regurgitation appears to be a lateral "substitute activity".

Amplification of something I said this morning, in case it should prove to be misleading. O - L performance is often the initial stage of greeting after birds have been together in M, but I doubt if this is "usual", (i.e. if it occurs during an actual majority of such greetings).

Mocketuro, Dec 2, 1955, V.

Back view of egg shape

There is a characteristic shape to the head & neck during V (also O to some extent). Neck is thin & long (neck is also often long & never really stiff from side view too) and the greatest thickness, which almost appears to be a slight swelling is just below the nape. Presumably correlated with "egg" shape

Confusing. Lots of V's are much longer neck than the anxiety or alarm postures I saw at La Pentella

this sort of thing is quite common

Rather like some of the "anx" postures of Ruby-throat

Sound & N plus glide followed by very swift flight, rapidly beating wings, with some twisting and turning, rather like some of the swift flights I have seen with PCC's or low-intensity (i.e. not vociferous) silent Pauses. The whole performance looked at least as high intensity as the usual PCC's with our-lungs at hears

I should say that a good 25% of the actual attacking that takes place in the group (and attacking is actually quite common) is sustained by one or both heads of pair, prevented (more or less completely) by the presence of the partner. All other forms of attacking, i.e. actual repulsion of an intruder or real interaction with neighbors, seem to be very rare. Plus an remarkably "non-aggressive", even "non-hostile" species, except during pairing. Explains why I have had difficulty getting my desired counts of non-sustained hostility. And even so I have probably counted sustained hostility by mistake

I think that the display associated with attacking are much the same when the attack is sustained as when it is "direct". The only difference I have noted is that M's before attack are relatively common, when the attack is a sustained one. And even this difference, if it does exist, is probably slight

I have seen absolutely nothing, with the possible exception of a few

<u>moderate</u>, Dec. 2, 1955, VI.

V + HF's and M + HF's, which looked like hostility provoked by a neighbor or intruder and redirected upon a mate.

When a redirected attack on neighbor takes place, there is a definite tendency for the post-attack HF by the attacker to be directed away from its mate, irrespective of where the attacked bird may be or may have gone to. I have tried to ignore such "redirected" HF's in my counts.

The frequency with which HF's are superimposed on L's & M's, incidentally, is another resemblance between this species & Franklin's Gull. Such HF's are <u>much</u> more frequent in this species, however. I think that this species does more HF-ing than any other species I have ever watched.

♂ V-HF-P, ♀ nothing. Both V + SS. Both V-SS-SS-SS-SS

There seems to be absolutely no ritualized hostility toward Ring-Billed Gulls, no "potential predator" reaction, in spite of the fact that the young Ring-Billed Gulls frequently try to steal the fish ♂'s regurge for ♀'s.

♂ V-HF-P?

Pairs often fly to water to bathe after copulations.



<u>V before attack</u> - V + HF after attack - LN-LN-LN-LN-LN-LN - M + M note - <u>V before attack</u> - <u>V after attack</u> - V - gen - V V V

Have watched a number of birds giving "clear" LN's on ground. Two in particular. Apparently "nesting"; in one case interspersed with a lot of attacks on neighbors. There seemed to be a tendency for these LN's to be given from more extreme V postures (although not always) than those usually associated with "rattle machine tone" LN's. Isn't this good evidence for the theory that the "clear" LN's are higher intensity than the "rattle" LN's. These clear LN's could be transcribed as "Aow" or "Now". <u>They resembled remarkably the nasal LN's of Franklin's Gull</u>. Further evidence of relationships.

I think that it can be definitely said that this species has a relatively weak attack drive, much weaker than that of Franklin's Gull or the B & G. One presumes that this is correlated with the fact that it doesn't stay in its colonies very much.

modestus, Dec. 2, 1955, VII

One thing is noticeable about the aerial L.C. I have only heard it given by birds flying low, either near me or near other birds on the ground. I have never observed it as a form of hostility between flying birds. Of course, I haven't observed ten birds flying in flocks the way I did Franklin's Gulls, but I think that the aerial L.C. must still be relatively rare, at least, as an "either-aerial" pattern. Rather enhances the impression conveyed by the apparent absence of pursuit flights. (Here latter must be at least relatively rare in this species. I have seen fairly many cases of vigorous unidirected hostility during passing – when B&G's and Franklin's Gulls would pursue like mad – for them to be anything else).

A bunch of repeated silent Pomarines 6:45 p.m. (birds probably getting ready to leave. Feature that on the flexing up, during the first few seconds of the flight, that way birds attend "Whup" or "Whup Whup" or "Whup Whup Whup" calls much slower than usual A&C's. They were probably, however, some modification of the A&C. A&C's slowed down by intense stream of getting up and into rapid flight ?? Or modified by intense excitement ?

Bird come back 7:00 p.m., but I leave.

Flies was entirely an extremely bad day !!!

December 3, 1955,
Antofagasta Bay.

modestus

Arrive field 6:10 a.m. Spend most of morning cleaning.

Heard a jaw bird flying, quite complete L.C. Essentially just like three of adults. No real "jaw" quality to voice. Perhaps a little weaker, less carrying power than the L.C.'s of adults. (Seemed almost deeper & hoarser than those of adults.

Back 5:50, after watching terns earlier in the afternoon.

modestus, Dec. 3, 1955, II.

Have been paying some attention to M notes given by flying birds. Have heard them several times by birds flying over colony, above and moderately high. Note may have been directed toward a mate on ground below, but the mate must have been some distance away, at least. Moreover, these birds were leaving, not approaching the group area. Later heard another solitary flying bird, also flying quite high and away from the colony, give complete L.C. → M note → M note. All in all, these M notes seem to be quite as much an social pattern as the usual L.C.'s after opens. But there is still no doubt but that they are much rarer.

It is my impression that these birds, in these circumstances at least, discussed more strongly during their glides than do Franklin's Gulls. There is always a definite flying up after the end of the glide — a flying up which I do not remember seeing before in Franklin's Gulls.

I have seen little or nothing like "circling" around a potential predator. The birds quit square or fly away from human beings & dogs. This is another indication of the relative weakness of the attack drive in this species. Ring-bills would certainly circle even strongly they were away from the colony site.

○ ♂ 21 T's, 1 M + M note, 3 H's. 81 T's, 1 H, 1 HF, 4 T's, 1 H. 6 T's, 1 H. 5 T's, 1 H. 46 T's, 3 M's, 6 Qoots, 1 V, 1 HF, 1 H.

○ ♀ 24 T's, 3 H's. 81 T's, 1 H, 1 HF, 4 T's, 1 H. 4 T's, 1 H. 5 T's, 1 H. 46 T's, 6 V's, 5 HF's, 1 pointing.

♂ M + HF - O-L-T - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V - O-T - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - M - HF - V + HF - V

♀ M + HF - O-L-T - V + HF - V during escape - V - HF - V during escape - V - HF - V - HF - V during escape - V - HF - V during escape - HF - V - LH - LH - LH - V + HF - V during escape - HF - V during escape - V - HF - V - HF - V - HF - V - HF - V - HF - V - HF - V before escape

moderator, Dec. 3, 1955, III.

Just watching some interesting pairing behavior. Essentially the same as the stuff seen before, but more stereotyped. Almost a classical example of a ♀ run together, also M + HF - O-L-T. Then both in V + HF. ♀ runs away about 15 yds, stops in V. ♂ runs to her in M, HF which begets three, then V + HF; ♀ just does V plus HF. Then ♀ runs away again, stops. ♂ runs after her in M, HF which begets three, then V + HF ♀ just V + HF. ♀ runs away again, and the whole procedure, i.e. running away followed by V's + HF's by ♀ and running after the ♀ in M followed by HF's, V's + HF's by the ♂, is repeated again + again (14 times in all). Then ♀ flies away.

There are a few further points to be noticed about this sequence. ♂ overshot O-T after ♀ left him. ♀ once did 3 LENT's after leaving the ♂, when he was slow in follow her!! ♀'s running away was definitely escape most of the time (probably all of the time, but I couldn't always be sure); preceded by a slightly nasty type of V, and the run itself was extremely rapid and not directed toward any other bird. The posture in which she ran, however, was rather peculiar, (probably common enough, but I just haven't paid enough attention to it) V, long neck, thin neck, slightly arched at top of neck, perhaps slight trace of "egg" but very slight, bill pointed strongly downward. Neck inclined quite strongly forward. (The whole thing was perhaps slightly reminiscent of the Oystercatcher of the Lehua Gulch). I am afraid that I may just possibly have called some postures like this "Agg V" in some of my hostile counts. In any case it is so similar to the "Agg V" morphologically that it is obvious that we should not make any distinction between "V" + "Agg V" in anything as crude + rough as these counts. (The actual posture itself is much like the posture through which a bird passes when giving an HF with a strong downward component: ). This is certainly one of the few relatively non-aggressive postures I have ever seen in which the bill was pointed strongly downward. Presumably the whole aggressive component of the pattern was "expressed" in the bill angle, the rest being "pure" escape.

moderate, Dec 3, 1955, IV.

In case I forgot to mention it before, this ♀ running away from ♂ to be followed by ♂ right away or after a few-seconds delay, the whole procedure frequently repeated, is not uncommon in the group as a whole. I have seen it in a lot of pairs. It is characteristic of early pairing.

One bird giving particularly vigorous aerial L.C., during very fast glide (but not very steep), had neck & head pointed slightly upward at the end of the L.C. & glide =  This was certainly the most extreme aerial. Very long & slender effect. semi-O I have seen so far

The aerial M notes are given from the same posture most aerial L.C.'s and many aerial L.C.N's are, i.e. neck stretched forward, bill, head & neck uniformly horizontal.

Have just heard an aerial L.C. followed immediately by one "clear" L.C.N. This was very reminiscent of Franklin's Gull. There was, certainly no trace of T with this L.C.N.

Note about orientation of mutual T'ing before copulation. ♂ faces ♀ & faces until he drew nearer and he tries to get behind her. Usually moves from behind her, facing forward, but by no means always. ♀ faces ♂ keeps turning to face him when he tries to get behind her, until she is ready to let him mount, when she stops turning. As I mentioned before, the mutual face-to-face T'ing is sometimes accompanied by a little, very brief, "billing." The ♀ usually takes the initiative in this, and I think it is probably connected with FB. But I have just seen a ♂ take the initiative in billing.

Have just seen a pair in which ♀ appeared to be slightly larger than ♂ (I am pretty sure of my identification. The small ♂ just fed the ♀, then mounted her, and an apparently normal copulation took place). This is certainly a surprise!

I wonder why I see so little aerial "pair-formation" behavior these days. Is that place about over?

Leaving 7:17.

modesties

December 4, 1955
Antofogasta Bay

Arrive field 6:10 a.m.

Notice as I walk by that there is a ♂ sitting on top of a ♀, presumably early part of cop attempt, and both birds are uttering a series of "clear" LEN's, "Aow Aow Aow Aow...." Both birds in V or semi-V. Then ♂ starts cop. movements, starts M notes, ♀ stops calling.

* common area field

H before attack - V after attack. H after escape V - ♂ before attack - V after attack V V V V 4-5 S after attack. V after escape (count this about 15 min.)

I think these birds are "territorial" in one sense at least. There seem to be pairs, in the same stage of pairing, in the same places day after day.

Note on sexual behavior. It is very common to see a ♀ T'ing from H, quite vigorously, obviously "un afraid" or "un-nervous", while ♂ is in V, obviously "nervous", occasionally making reduction attacks, making occasional M and sequence intention movements, finally regurging, with or without M notes. Then, as soon as the ♀ has eaten, the roles of the sexes are pretty reversed. It is the ♂ who begins T'ing vigorously from H, obviously more "relaxed", and the ♀ who goes up into V, becomes visibly "nervous" (if she makes reduction attacks, she usually makes them now). This sequence suggests several things. In the first place, the appearance of "nervousness" is probably produced by an appreciably strong attack drive as well as a strong escape drive. In the second place, the act of regurgitation is not just an expression of a sex drive too weak (relatively or actually) to produce copulation, it appears to release some sort of "emotional block", & thus permits copulation or pre-copulation behavior by the ♂. How exactly does this work? Superficially, it looks almost as if regurgitation were "self-stimulating", but I think that it probably produces its effect by reducing the hostile drives or something like that.

It is quite remarkable how often mated birds, usually (or perhaps almost always) ♂'s, when separated from their mates, will do a brief "invitation" display toward some other nearby bird(s). Usually M+HF, not infrequently V+HF, some

modestus, Dec. 4, 1955, II

times even an O-L. This may be taken as further evidence of the primarily hostile nature of these particular patterns.

Sudden burst of Silent Gamos 7:48-7:55. Can't see what starts them off. In general, it can be said that these birds are as prone to panics as any other species I have studied in a colony at a comparable stage of the breeding cycle.

♀ does LEN as her ♂ flies in toward her. Then V-HF just before he lands. (This is exactly the same sort of thing commonly used as greeting by other gulls; but I have seen very little of it in this species because the approach is so often on foot.)

○ ♂ 18 T's, 1 H
○ ♀ 3 T's, 2 V's. (count there about 1 hr)

Apparently still some unmated birds around. One ♂ lands some distance from another bird, approaches it, M-HF-HF-HF. Other bird just retreats. ♂ then stands in M, giving repeated rattle LEN's. Then relaxes.

The "hump" in the neck of the non-response ♂'s during early pairing can be considered an adaptation making this posture a "deceptive" display, in part at least.

For my counts of pre-cop behavior I am only using those cases in which the ♀ let the ♂ stay mounted for a few seconds at least.

The mere act of mounting seems to continue some appreciable sexual motivation. I have watched several ♂'s mounting repeatedly, slipping off immediately each time (one case in which the ♀ walked away repeatedly, another case in which the ♂ just seemed to be slipped off). Every time the ♂ slipped off, there was a pause of several seconds to a minute before he began T'ing again. This even though there was no sign (i.e. display) of an increase in his hostile motivation. Presumably just that his sex drive had been temporarily lowered.

It is remarkable how often redirection attacks during pairing are delivered from a very ordinary-looking, intermediate, superficially low-or moderate intensity V. The V's of this species would certainly appear to be less ritualized than those of any other species I have worked on.

modesto, Dec 4, 1955, III

A crowing triple copulation ♂ on a ♂ on a ♀!!
Leaving 9:10 Back 3:45

Apparent case of ♀ visiting a mated ♂. I didn't catch the initial approach. When I first looked, the ♂ was in V of ♀. The ♂ attacked her violently before she finished O. ♂ on ♀ ran away a foot or so, both birds HF'd violently away from one another, in V. Then ♀ walked away. Both birds began LCN-ing. ♂ started to make a few approaches toward ♀, but then went into M and ran to join another ♀, his own, who was running in M to meet him.

Noted that both ♂ and ♀, in V, before cop attempt, were "crested". Also in the rare V's they both sometimes crouched during intervals of T-ing. Easily this "crested" posture can't be "reversal"? Can't be.

O ♂ 12 T's, 1 H. 2 HT's, 3 H's, 5 M's. 4 T's, 1 H. 4 T's, 5 M's, 1 M + M with, 12 U's, 11 HF's, 3 SS's, 1 T's, 1 H. 4 T's 3 T's.

O ♀ 6 T's, 1 Gast. 2 T's, 3 U's 4 T's, 1 H. 3 2 T's, 1 M, 12 U's, 15 HF's, 3 SS's 11 T's, 1 H. 4 T's 3 T's.

Have just heard a flying bird utter most peculiar LCN's "Ja-what Ja-what ...". With rattle undertone, and obviously a modification of the "rattle" LCN; but definitely fringillidae. Rattle weaker, voice "hoarser" than during ordinary rattle LCN.

* comm: area, field

(5:00) V before attack - V + HF after attack - V between attacks - V + HF after attack V before attack - V after attack V after being attacked V before attack - V after attack V. V. V V before attack - V after attack. V. V + HF. V + HF after attack. V before attack - V after attack. V. V + HF after being attacked

Must stress the fact the V's with feather-raising, at least the extreme forms of them, are relatively very rare. The extreme "crested" + "egg" forms are no more than 7-10% of total V's, at best; and the low-intensity indications of "crested" and "egg", somewhat commoner, (especially the low-intensity forms of "egg" are difficult to separate from ordinary V's).

I think "egg" V's are commonest with the V's + HF during mutual greetings between mates

moderates, Dec 4, 1955, IV.

There may be some tendency for birds near me to stand in V and utter "Crow" LCN notes. Could this be the equivalent of the "ground PCC" of Franklin's Gull. Must check! (for reference on earlier day, in which I thought these "Crow's might be something else)

Yes! I think so! Just tried experiment of walking up to the group very slowly. Birds went into V or Alarm Posture, started to retreat slowly. Also gave a definite burst of "rattle" LCN's, "Crow" notes, all sorts of intermediates between "rattle" notes & "Crows", plus a whole burst of Al C's.

This "Crow", of course, is just a type of "clear" LCN. My impression suggests that it may be a relatively high intensity LCN, and relatively non-aggressive, at times at least. It is also not dissimilar in quality to a brief aerial PCC note. All this makes it almost certain that the "Crow" is the homologue of the "Ground PCC".

* common area, field

V before attack - V after attack, V. V. V during retreat. V before attack 2 - V during retreat V before attack - V after attack V before attack - V after attack. NT V after escape V before attack - V 5 after attack V after attack 2

Angle of wings during glide (This seems to be almost invariable).

* common area, field

V 11 F after attack

Can confirm the bit about the "Crow" note. Heard again & again when I approach the birds.

Leaving 6:50

Dominicanus

December 4, 1955
Antofogasta Bay

Have continued watching these birds from time to time; but under most unfavorable conditions.

FT's as FB This looks much like some of M.T.'s photographs of the Herring Gull Body is somewhat diagonal, breast up and tail down. Have only heard normal at great distance; but it seems to be the usual "Kliee" thing

Mutual T'ing before copulation attempts

Copulation like that of Herring Gull ♂'s bill is open slightly but I haven't heard the normal.

The V posture seems to occur in the usual circumstances, i.e. before and after attack and escape, after copulation, as M.C. I am not sure that the bird has a real "aggressive head-set" with bill pointed strongly downward Most of the attacks I have seen have been delivered from a posture much like M.T.'s photographs, i.e. bill horizontal or inclined slightly downward, forehead very flat — so that the head looks very narrow in front when viewed from the side. The feathers of the back of the crown appear to be relatively long, and are not flattened, so that the bird sometimes (i.e. when aggressive) appears to be almost crested, (although much less so than Franklin's Gull or even the Grey Gull)

Noticed one interesting thing about the attacks delivered from V. They were similar in physical form to the attacks delivered by hooded & Grey Gulls — except for the fact that there was no bill-opening, no G, even at the very moment of delivering an actual blow. Does this mean that even those G's of other gulls that I haven't been counting as display, under the impression that they were "pure attack", are really somewhat ritualized.

There is no doubt but that this is another species in which V's are relatively very common.

elegans

December 4, 1955,
Antofagasta Bay.

There has been a large flock of these birds, in winter plumage, in the bay here every day since I arrived. Usually rest on the shoreline. Leave around sunset. The birds are not very active; and are rather shy (very prone to silent flames), but I have watched them a little.

They show quite a bit of rather low-intensity unritualized hostility from time to time; usually when the shoreline is crowded and more birds are trying to wedge themselves in. The usual jabbing-pecking; very well orientated, delivered toward opponent.

I have seen one possible case of a low-intensity Unrest raised.

The only display that is at all common is what appears to be Glik. The call itself is a "Kaaa-haaa-haaa....". It has a definite "rattle" undertone; a sort of rolling of "R"s underneath. The individual syllables are perhaps slightly longer than the individual Glik notes of Franklin's Gull. I haven't heard any very long bursts of notes; but it is my impression that succeeding notes tend to remain on the same pitch. This is accompanied by repeated up-and-down movements of the head and neck. The neck is usually stretched forward during these movements; but sometimes this stretching is very slight. Sometimes the up and down receive equal emphasis, but sometimes the down-beat is emphasized (i.e. more rapid). I think that the up movement usually comes first. The positions at the peak of the up movement and the nadir of the down movement are shown by sketches in the sketch book, (these positions are rather extreme, long-necked, nervous). I think that the bill remains open throughout a burst of "Kaaa" notes. The crest is always raised during this Glik. I have seen some Glik with body R; but these cases have been rare and may have been accidental. This Glik appears to be contagious.

elegans, Dec. 4, 1955, II

I noticed some slight, shortwinded, up and down movements, with bill closed & crest not raised, apparently silent, in hostile situations. These were probably int. mov. of Glik.

Sometimes a bird on the ground, when a flying bird was about to land too near, would lift its head up, sometimes twisting it around to face the flying bird, open its bill, and raise its crest. This may have been accompanied by Glik notes, but there was no trace of the typical Glik up and down movements

Crest-raising is obviously aggressive. I have seen birds raise their crests when delivering otherwise unmistakeable attack movements.

Raising of the carpal joints is obviously a flying int. mov. Done by birds before flying up in panic, and after landing. This was sometimes quite extreme. The carpal joints were usually somewhat raised during Glik, but never more than slightly, just so that the carpi were visible

The Felicit Panics were full of erratic flying.

I am not sure if Glik notes were uttered by flying birds, (I think they were — but usually when trying to land in a crowded section of the Group); but another note appears to be characteristic when the birds are milling about in the air after a Felicit Panic has begun to calm down "Kreyup" or "Kreyar" notes. Higher pitched than Glik notes, but also have "rattle." Sometimes uttered in quick succession; but never really high intensity rhythm like Glik

Another call uttered by flying birds when a Felicit Panic was relaxing was a rapid "Kree bree bree bree bree...." Clear, high-pitched notes — very shore-bird-like

Gorts were very common during periods of general hostility. Couldn't possibly have been "coincidence".

Have seen only one pattern which might have been connected with pairing. Two birds, flying very fast, one behind the other,

elegans, Dec. 4, 1955, III

with some zig-zagging. One or both uttered "Krik Krik Krik..." notes, fairly long-drawn, separated by intervals, with just a very slight rattle undertone. This flight ended in a precipitate glide by both birds (which I couldn't follow)

(Must check all this stuff, particularly the glide postures, with Walker's photographs in "Natural History" & "The National Geographic")

One of these birds was a mutant. Had pastel orange-pink legs (same color as bill) instead of black ones.

December 5, 1955,
Antofagasta Bay

dominicanus

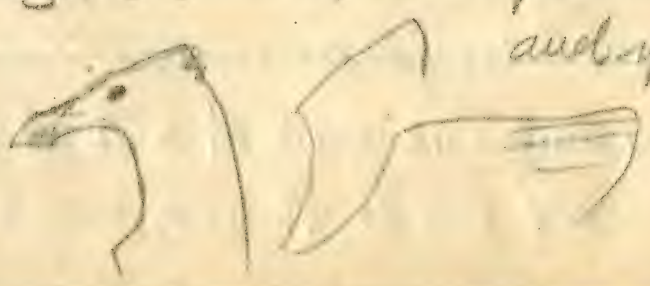
I am rather puzzled by what these birds are doing here. Several pairs (at least) of the adults seem to be enjoying numerous successful copulations. And there are always lots of adults around throughout the day. Don't they have a colony of their own to go home to?

These birds have dark eyes. (Or, at least, all the adults I have seen close up have dark eyes). Look dark brown (from distance of less than 10 ft, with glasses). Reddish eye-ring inconspicuous. The corners of the mouth are a little more orange than rest of the bill, in some birds (probably just those with relatively slightly orange bills as a whole). Inside of mouth nondescript yellowish.

Yarts occur during battle encounters. Not overwhelmingly frequent, but probably too common to be coincidence.

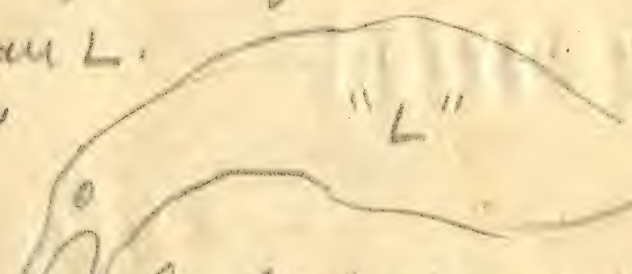
Have seen chalung once during a dispute on the field. Usual type, legs slightly bent, but no squat or lowering of breast onto ground.

High intensity V, just before or after attack, is sometimes with wings raised and spread a little. Usually momentary, probably not ritualized



dominicanus, Dec 5, 1955, II

The L.C. pattern seems to be quite variable sometimes O alone (can confirm the fact that it usually contains 6–8 syllables, more often the same than the latter I think. Must correct one thing I said previously – all the notes are almost the same pitch, certainly no pronounced lowering or deepening as call progresses – notes are deep to begin with) Have once seen a single phase L.C. in which the pattern was intermediate between O & HD, although the notes were typical O notes. Looked almost like an L. (This "L" was given by an appar-
ently "aux" bird, just before retreating)




Have seen a lot of HD-O's. The head
is often quite far back during HD, (but I haven't noticed any particularly conspicuous raising of carpal joints during HD). Haven't seen any more 1/2 O-HD-O performances.

HD is sometimes, at least, accompanied by 1, 2, or 3 very soft notes, usually buzzy. These have very little carrying power, and I can't transcribe them. They may be like HD notes of leucheri

Considering the size of these birds, (they are extraordinarily variable in size and proportions, incidentally), their voice is comparatively weak. Even the O notes have nothing like the carrying power of the comparable notes of the Herring Gull.

One juv. gave repeated L.C.'s (or parts of L.C.'s) from O posture just like adult. Sound was most peculiar "Tik tik tik tik ...." More or less same number of syllables as in adult O call. (This bird was in approximately 2nd winter plumage – or so I deduce from Murphy's brief description). Gave this call in obviously hostile circumstances!

Some of the Gports are probably HD int. mons. They are exactly like the usual brief HD int. mons, except that the bill isn't opened and there isn't any buzz note

dominicanus, Dec. 5, III

One very interesting incident adult bird gave usual HD int. mov. with call, and then, without the slightest pause, kept head going down & back and began to preen lower breast feathers in a perfectly normal-appearing manner. Excellent example of facilitation by similar feedbacks" or whatever you want to call it.

December, 1955,
Antofagasta Bay

dominicanus

Added a few supplementary remarks to yesterday's notes

Condition. The eyes are not really dark. They are actually grey, just as Murphy says. But this is only noticeable when bright sunlight is shining right into a bird's eyes. In the shadow of the eyebrows the eye does look dark, the only effect of the greyness then is to make the eye look smaller. It is small at the best of times

Front view this bird is remarkably flat-headed

Confirm. The carpal joints are usually (perhaps always in this situation) not lifted during O & HD. Sometimes they are hardly visible

T-HD after attack !!

Bird making long circling flight. Didn't see what happened before it flew up. Gave repeated LCN's and 2 M notes: "Aow Aow Aow Aowoooooa Aow Aow Aowoooooooa ....." Then back, landed by itself. This incident suggests that M note is not too closely tied to "purely" sexual behavior. (Or, of course, that what I have been calling M note is something like a PCC).

♂ regurgitates food for ♀, after mutual T'ing, copulation, ♀ T'ing

Can confirm general weakness of voice. Certainly true of T note, M note on ground, & Cop Call

modestus

December, 1955,
Antofagasta Bay.

General note about these birds. They are certainly "calmed down" since I first arrived. It has been days & days, for instance, since I have seen diving or anything that looked even remotely like pair-formation. Mostly lots of late-stage pairing behavior now. (Many of the birds are still staying in Antofagasta at night. Checked this last night)

Have heard one "Caw" note by attacker before attack

December 6, 1955,
Antofagasta Bay
and Tocopilla.

The types of laridos have remained much the same in Antofagasta ever since my arrival. Lots of Gray Gulls, lots of Elegant Terns, quite a number of Kelp Gulls, and a few (1-4) Franklin's Gulls (all adult). Had brief glimpses a week ago of a smaller tern, possibly Arctic Tern (looked very gray — and in non-nuptial plumage). One juvenile Belcher's Gull seen around Nov. 25-26

Assemblage of birds at Tocopilla, seen Nov. 29, was surprisingly different. Lots of Gray Gulls, and quite a lot of Kelp Gulls, just like Antofagasta. But also quite a number of Belcher's Gulls, both adult & young birds; and quite a lot of Inca Terns (breeding in barges!)

P.S. All patterns performed by adults, in more or less complete nuptial plumage, unless stated otherwise

Servanus

Tuesday, December 13, 1955
Laguna de Maule

There are a number of these birds here, (probably 25 in all). At least 3 birds in complete adult nuptial plumage. Several adult birds in incomplete nuptial plumage. Several first-year birds, in very incomplete nuptial plumage. The birds are not active. Have seen no signs of pairing, surprisingly little hostility.

Definite ritualized V posture. Have seen one or two cases very definitely agg. (see drawing); several cases in which the posture appeared to be intermediate between mod. & agg. ↘  One of these latter was adopted by an escaping bird. Haven't yet seen anything that was morphologically an aus. V.

HF definitely present. Same as that of the Bhg in form. Definitely produced by a preponderance of escape motivation, occurs before, during, and after overt escape.

In general, the voices of these birds are like that of the bird in the Lima Zoo. Probably the highest & shrillest of any gulls I know.

Have heard one complete LC, in distance. Didn't see the accompanying postures; but the sound itself was just like the LC's in the Lima Zoo.

The commonest form of hostility among the birds on the ground here is the LCN. Often comes in great bursts. Each note relatively short, ——, "Kree" with pronounced rolling undertone of "r"s. Given from semi-O, or, much more frequently a V posture (see drawing). Definitely aggressive; have seen it precede attacks several times.

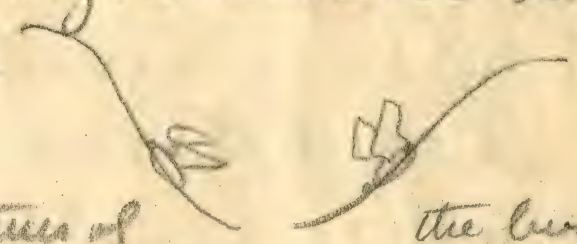
Al.C. notes given by flying birds, swimming birds, & birds on ground. Sharp "kik", or, better, "tuck" notes. Either single notes or, higher intensity, double notes. Have yet to hear a trisyllabic Al.C. All the Al.C's by birds on ground or water have been given from slight Alarm Posture.

Both short & long LCN's given by flying birds. Short ones occasionally given by bird flying past me. Both long & short LCN's given

by birds circling over me. Long LCN's given by pursuer during pursuit flight. Long LCN's given by bird during swoop. The long & short LCN's are very similar. The short LCN's given by flying birds are just like the ones previously mentioned as occurring during disputes on the ground. The long ones are often very long ——————; must also be transcribed as "Kreeeeeeeeee...", but they are purer than the short LCN's, lack the "rattle" or "rolling R" undertone. All sorts of intermediates between them. The long LCN's are presumably the equivalent of, and homologous with, the PCC's of other gulls.

This circling, noted above, was just like that of the Ring-bill. No up & down movements.

The three cases of swooping & soaring observed occurred when several birds (5) were circling around me. All performed by one individual. Redirected in vacuo. Relatively short, but quite steep. Pronounced dihedral during soar.



The only remarkable thing about the posture of the birds screaming LCN's above me, and the bird swooping & soaring, was the peculiar effect conveyed by the position & relative size of head & neck. The neck was usually stretched forward & downward, the head also pointing downward, and there was a noticeable contrast between the small black head & the large "puffy" white neck.

Several birds circling above me, or flying straight toward me, have screamed a long series of LCN's, the long kind, with very little pause, if any, between successive notes. These performances were not, however, complete Long Calls. No — — — — effect.

I have heard some LCN's by flying first year birds. Usually brief, although some moderately long. Much like those of adults, but buzzier (more "rattle"?), more like the LCN's of Bonaparte's Gull.

No sign of "erratic flight" like that of Bonaparte's Gull.

In general, the voice of this species, compared with that of the

serranus, Dec 13, 1955, III.

Gray-headed Gull, sounds as if it came from a smaller bird.

The bodies of these birds here do not always look as relatively large as that of the bird in the Lima Zoo. Still — they never look small-bodied.

The only pursuit flight I have seen was obviously connected with food. Some twisting + turning, but no swooping or soaring.

December 14, 1955,
Laguna de Maule

serranus

Notice again that the V + brief LCN's often precedes attacks. In this case, an adult, incomplete nuptial plumage, did it repeatedly before charging a first-year bird. Once did V + LCN → V → charge.

V + brief LCN's also appears to be a reaction to me. When I approach, a bird swims away from the shore a few feet, then swims along, far away from any other bird, in V (swimming type — can't be very well distinguished from alert posture) uttering an almost constant stream of brief LCN's for more than a minute.

Some V's look exactly like mod. agg. V's of the B.h.G., i.e. lack the prominence toward rear shown in my drawings.

Vermilion inside mouth is very conspicuous during LCN's.

One bird (adult, incomplete nuptial, ?) does R, in more or less relaxed posture, when another bird passes close by.

One first-year bird gives LCN's from relaxed posture when adult approaches. These notes were relatively "pure" and low-pitched, might be transcribed as "Heow"s.

One first year bird goes into H (possibly semi-F) + R, then immediately attacks.

Extreme agg V by first-year bird.

V before attack — V + HF after attack  V before attack — V + HF after attack

3.00 p.m. A whole new outlook!

Found an island in the lake where there is obviously a breeding colony well-established. About 25-30 prs probably.

The island is small and rocky (not very large boulders, however). The only obvious vegetation is a good deal of the short, tussock-y, grass which is so common around here.

This island is about 1/4 of a mile from the nearest bit of mainland. I can see much of what is going on, and even hear some of the calls given by the birds, and some of the birds occasionally fly over to show much aerial hostility over my head; but it is somewhat difficult to determine the exact stage of the breeding cycle represented by the colony as a whole. I haven't noticed any early pairing behavior. Boundary disputes are occasionally conspicuous & prolonged. There is little redwinged aerial hostility. I have seen quite a number of copulation attempts. Some of the birds may be sitting on eggs; but some pairs obviously can't have nests (♂ & ♀ sitting side by side on rocks in water). My guess is that most of the birds are just at the immediate pre-egg stage.

Now to get down to the behavior of the birds.

Lots of aerial hostility by the birds which come to fly over me.

I think that my analysis of the aerial call notes needs to be revised, or rather extended, somewhat. The aerial LCN's are extremely varied, long & short, "pure" or "rasping" (i.e. with a rattle undertone). The longer & purer notes seem to be higher intensity than the shorter & more rasping notes. (It must be mentioned, however, that there are occasionally short pure notes and long rasping ones; although there seems to be a definite correlation between length & pureness, i.e. the notes tend to get purer, higher, & shriller, as they get longer). The very high, shrill, pure notes are apparently produced by a preponderance of attack drive, as they are frequently given by birds flying straight toward me. There

are not, however, the real equivalent of the PCC. The real PCC notes are long, pure, relatively soft, somewhat lower in pitch, often quavering, sometimes almost trisyllabic "Keee-a-wah". It is these latter that usually accompany the swoop (although the beginnings of some swoops are accompanied by the higher, shriller, long notes), and occasionally continue (in a fading form) into, or even through, the foar.

I have finally heard a number of trisyllabic AlC's; but these are still obviously relatively rare — they only occur at the "highest" intensities (or the strongest relative strengths of escape ?? very doubtful, as the birds don't retreat from me any more rapidly, or any further, when they give trisyllabic AlC's than when they give bisyllabic or monosyllabic AlC's). It would appear, in fact, that the trisyllabic AlC's of this species are never produced by such weak motivation as some of the trisyllabic AlC's of other species. This is one of the more peculiar features of this species.

Some of the birds flying above me have uttered repeated series of LCN's, med. long, high & shrill, without pause between notes. Again, however, there was no trace of real aerial LC. I am beginning to think that this species may really lack an aerial LC, as some of the birds flying above me have obviously had very high motivation indeed. (It is possible, of course, that their escape drive has been relatively too strong to permit an LC; but then one would expect the LC to be given by birds that do a lot of swooping, etc. And it is hardly likely that the LCN's I have heard would all be less aggressive than any LC that the species might have).

Intermediate notes between LCN's and AlC notes are not infrequent. Almost bisyllabic "Kuwup".

I saw a lot of swoops & foars performed by the birds above me. All redirected; some in vacuo, some upon other nearby birds flying around me. Some of them were like the ones previously described, i.e. short

Serranus, Dec. 14, 1955, IV.

and stops. Others were much more extreme, quite as exaggerated as the most extreme swoops & soars of Franklin's Gull. They were not as exaggerated as the most extreme swoops and soars I have seen in the BHG; but, the fact that they are as extreme as they were, relatively late in the breeding season, and in view of the fact that I have only seen a relatively small number (about 10-12) of them, there is every reason to believe that the swoop-soar complex of this species is probably quite as well-developed as that of the BHG.

I noted a few apparent peculiarities in the form of the swoops & soars of this species. (a) I was struck by the extreme amplitude of the wing strokes during the swoop, from almost straight up to almost straight down. Also, as previously noted, the extreme lifting, almost vertical, straight-sided position, of the wings during the soar. (b) It was noticeable that the birds often assumed the same stalking posture, head & neck stretched strongly downward, before and during the swoop that they did in the soar. (Other species do this too, but I have never seen it so markedly as in this species). (c) There was sometimes a definite pause before the swoop, while the bird remained stationary, beating its wings as during the swoop, and maintaining the extreme downward stretch of the head & neck. This looked very much like a stationary "butterfly flight". Some or all of these peculiarities, it must be noted, may have been due to the fact that the birds were flying in a very strong wind. (They may have shown a tendency to swoop into the wind)

Although I saw a number of pursuit flights without trace of either swoop or soar, I also noted several pursuit flights which ended in extreme soars, and one which incorporated an extreme swoop as well

Semanus, Dec 14, 1955, V.

as a terminal fear

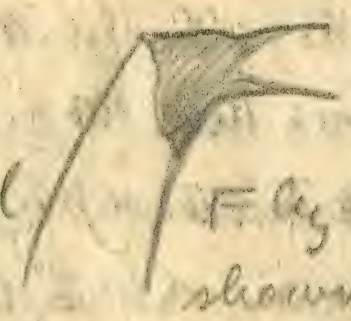
Have seen one or two "flying" fears

Several, at least, of the observed pursuit flights were apparently reactions provoked by intra-specific hostile disputes on the ground in the colony (These pursuit flights included the ones with fears, and the one with both fear & fear)

Also managed to see a bit of ground hostility in the colony, as well as a little hostility on the water

Vs are common. Occurs in just the same circumstances as the V's of other species, e.g. with HF after copulation, with HF as a low intensity greeting (without other displays), etc. Form much as previously described, appears to vary from extreme egg form to "moderate" form (neck not as thick as in egg V, bill approximately horizontal) Still haven't noted anything that looked like an extreme axe V in physical form. Noticed at least one V on ground with tail above wings also one V on water with tail above wings, (this latter followed F, and it is probable that the tail is seldom above wings in V's that do not follow F).

O and F are much less common than V in the colony at the present time. Much as previously described, but it is now apparent that the peculiar O's with "inverted arch" are always, or almost always, directed toward flying birds. Sometimes quite short-necked in these circumstances. The usual O toward a bird on ground is quite straight necked, unlike many O's of the BLG.

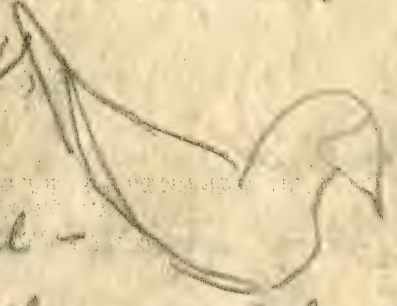


It would appear that the O is really quite variable as previously described. One very long-necked O-F is often shown by birds on the water

F also much F by birds on the ground toward flying birds; and it is probably the usual sequence of displays in such circumstances — as

might be expected. I am not yet sure what role O-F plays in "greeting". It is certainly relatively rare at present, but I have seen at least one "greeting" of O-F + V o HF.

Chalung is very common in the colony. Physical form much as previously described, sometimes as vertical as Ch. of B b g., and I have seen one case in which tail was left at above wings (but not spread). (It is obvious, incidentally, that this is one of the species most apt to left its tail above wings during threat. Remarkable in view of its size gives most peculiar effect, especially in V, as tail appears short and "far forward"). Chalung certainly occurs during both brief & prolonged territorial boundary disputes. Like Ch. of B b g, it is often noticeably motes toward one another during such disputes. I think that Ch may also play a part in "greetings", e.g. Ch + V o HF, but this is still somewhat dubious.

There is a posture intermediate between Ch + V,  and it is quite common.

HF is remarkably common with V, almost always present with the posture intermediate between V o Ch, and I have seen it once with pure Ch. Remarkably extreme in this species. At least as pictured in the HF of the B b g, much more so than that of the Grey Gull, for instance. Almost always a single movement, but have seen one case of "repeated" flagging.

Have seen a little sexual behavior, at a great distance. ♀ begging from ♂, posture of ♀, and movements, just like those of begging ♀ B b g, (except possibly that the actual backward tossing was relatively slight). Each tossing movement accompanied by brief note, which I could not hear. ♂ responded by regurge in some cases. Just put head to ground or went into real M. In other cases, the ♂ went into V, ran away, or performed redirected ground or aerial hostility. In still another case, ♂ went into V,

serranus, Dec 14, 1955, VII

gave 3 or 4 HB movements from V, then made mounting cut. mov. The actual copulations I observed, (3 or 4), appeared to be just like those of the Blg. ♂ gave Cop. Call, which sounded like "Ka ha ha ha ha..." from a distance.

One general note. The behavior of this species is becoming more & more obviously similar to that of the Blg in all respects. Just one problem about the O-F-L.C. complex. This appears to be relatively rare, in its complete form. And it may be significant that I could provoke Chalung at will in the captive bird at the Luna Zoo, while having considerable difficulty in provoking O-F. This suggests that the causal differences between O-F and Ch include something else besides mere intensity (and besides the fact that O-F is a long-distance as well as a short distance complex of patterns). It may be that the Ch of this species has "partly taken the place of" the O-F ????

December 15, 1955,
Laguna de Maule

serranus

Come back to the mainland opposite island in morning. Am immediately mobbed by 6 or 7 birds from island. Aerial hostility much less yesterday. But the wing-beats of birds charging me, and birds swooping, although emphatic, was no more emphatic or extreme than the wing-beats of Traubeli's Gull or the Blg. This is presumably due to the fact that there is almost no wind here this morning.

One bird flies around me, giving repeated high, shrill, long LCN's. In the head-down posture, although it shows no inclination to swoop for a long time

these proportions are about correct, except that the tail is a little too long

serranus, Dec. 5, 1955, II

Have finally discovered an aerial Long Call, and it is rather surprising! One bird flies around, swooping repeatedly. The form of these movements is quite usual, but the call is not a PCC. 2 or 3 three high, shrill, long LCN's during swoop, then 3 or 4 shorter LCN's during soar. These LCN's get progressively shorter, and perhaps slightly lower. The whole series of swoop-soar notes might be represented as ——— ——— ——— → ——— ——— ——— (swoop) (soar) This seems to be a definite L.C., although the differences in pitch between first and last notes are relatively slight. This behavior appears to be a remarkable specialization

The tail is closed during the swoop, but spread during the soar.

I have seen another bird do a swoop-soar with L.C.

When a bird flies around me, meaning high long LCN's, in posture with head & neck stretched downward, it goes out of this posture to a greater or lesser extent, goes into a "normal" flying posture, if it interjects a burst of ALC's in midst of the LCN's. Then goes back into downward stretch posture if it resumes LCN's

Much to my surprise, there appears to be a motor boat on the lake with fishermen. They land on island, walk around. One of them goes egg-collecting & finds at least 3 nests with one or more eggs. One nest certainly had two. So none of the birds are certainly in the incubation phase.

Silent Parries by birds as fishermen approach the island. Much as usual. Quite slight. Little erraticism. Birds just fly up, fly over water, circle, and land on water

Have also been watching a little behavior on land in the colony. One bird, ♂ of pair, does Ch-O-F-V+HF-V toward a neighbor who lands too close. Good example, presumably, of gradually declining intensity

Have seen several more "greetings" of Ch-V+HF, and combined (Ch+V) + HF-V

I am fairly certain that the posture intermediate between Ch and V is usually silent.

serranus, Dec. 15, 1955, III

Must revise a little that I said yesterday. O with inverted arch does occur during general disputes. But it is seldom or never the long initial stage of O. It appears when the transition begins to F. This transition is relatively long in this species. The length of the transition, in fact, is probably the complete explanation of the peculiar appearance of the O of this species. The BbG may well have an O with an inverted arch also, just before it goes into the F, but this is such a fast transition that the inverted-arch O is unnoticeable (At least, that would appear to be plausible!)

The posture intermediate between V & Ch is another one in which the body looks particularly large. At least as large as in the inverted-arch O.

The wind has come up again 10:30 a.m., and it has calmed down the birds in a quite spectacular fashion just sitting.

Aerial fight, long. Movements just like Swoop-Dive-Hover of Franklin's Gull. Couldn't hear any sound, however.

I am almost sure that this species can't have much in the way of glide. I would probably have heard a trace of it by now.

In case I forgot to mention it — I have seen the pursuer, during more or less horizontal pursuit flights, attempt to peek the pursued.

I have yet to see the pursued do very much twisting and turning during a pursuit flight, although I have seen a little. This is presumably due to the brevity of all the pursuit flights I have seen.

Some agg. V's appear to have bill pointing almost vertically downward.

comme ca

In case I forgot to mention it earlier, here or in Lima, the tail is not infrequently above tail in F.

servanus, Dec 15, 1955, V

Have again heard a number of first year birds flying above me, screaming LCN's. Voice quite like that of adults. I have not heard first-year birds utter the very highest, shrillest, & longest LCN's; but this is probably because I have never seen a first-year bird as "excited" or "upset" as some of the adults

December 16, 1955,
Zoo, Santiago

dominicanus

A lot of these birds in a pen here. In fairly good condition; but flesh colors (i.e. bill & legs) a little pale. Some of the birds quite active in "semi-normal" behavior (i.e. "friendly" chokeing, M, etc.)

M note is a "muffled" plaintive "Waaaaaah". Just like that of Herring Gull. Possibly a little deeper in pitch

M is often preliminary to chokeing.

Some of the M-Ch between members of pair appears to be "purely" "friendly", but a lot of it is obviously reduction as a result of hostile encounters with neighbors

HD is usually accompanied by 2 notes. These are "cleaner" than M notes, and usually shorter, but still they are much more like M notes than are the O notes. This may be significant in connection with the homology of L and HD postures.

Ch usually done standing. Posture like Herring Gull.

Bill is wide open throughout O, but the mandibles do close very slightly between each note

This closing is very inconspicuous — note — between notes.

Some Ch. appears to be absolutely silent, even close up (Presumably low-intensity). Often Ch is accompanied by call exactly like Herring Gull Ch. Call

dominicanus, Dec. 18, 1955, II

The fact that some Ch appears to start, in a low-intensity form, without preliminary M, and that some M notes appear to be relatively high intensity and frequently repeated, would suggest that the difference between M & Ch is not just one of intensity.

The "purely" "friendly" Ch & M can presumably be explained in terms of "general" or "sexual" frustration. On the theory that any form of frustration leads to "anger".

Case in which carpal joints were hardly lifted at all during HD, then lifted mod. far out during O !!

Extreme HD.
Less extreme form is just pointing head downward

Neck is not thick during O.

Both Ch and HD-O are common during the more extreme disputes here. V common during lower intensity disputes. M common during disputes when mate is present.

Ch sound might be transcribed as "nah nah nah ...."

There is very reason to believe that this species lifts its carpi relatively less and relatively less frequently than some related species. Not only is the lifting of the carpal joints extremely variable during the L.C. performance, but I have seen quite high intensity agg. V's without any lifting of carpi.

T sound, by ♂ T'ing from V, a very soft muffled "uh .... uh .... uh ...." sort of thing !!

Now lots of L.C.'s with very long HD, only one HD note.

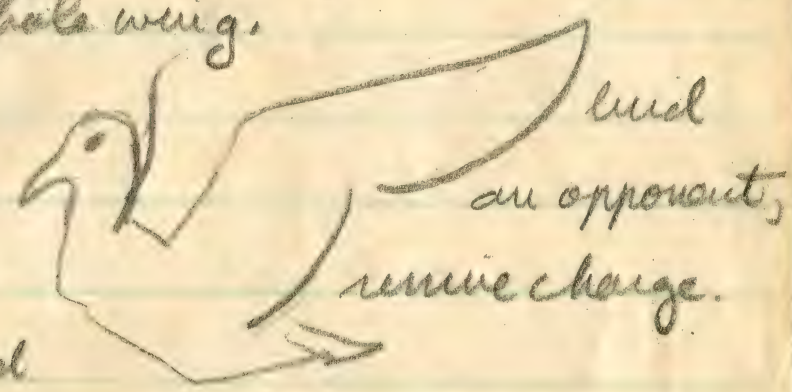
♀ Begging from H, with T. This T note is hoarse & muffled, but rather more like "Kreow" than the T note recorded above. (Bill is kept almost closed, or only opened very slightly, during all T's)

dominicanus, Dec 18, 1955, III.

Have now heard quite a lot of T calls. All muffled. The 2 previously recorded versions are the extremes: (It is remarkable how weak this sound is — it is quite inaudible even here at a distance of 20-30 feet, although both the M and Ch sounds are completely audible, even conspicuous, in these circumstances) The T note is obviously just the same, essentially, as that of related species; but it is deeper, & hoarser, and this, plus the muffling, is what makes it sound so different.

Birds tend to give M notes, apparently, when standing by fence to get cherries thrown by spectators

Haven't seen any V's with real "nest" raising, although a few have had faint indications of a nest. In spite of what I just said about carpi-raising, it is remarkable how many agg V's are accompanied by the raising & spreading of the whole wing. This is particularly conspicuous when a stops stock-still, right in front of and opponent, after having rushed forward in an agg-ressive charge.



Copulation Call is a rather loud "Ha ha ha ha ....." Usual quality of voice. Bill wide open.

Have seen ♂, just before mounting, give soft version of Cop Call, bill slightly less wide open, while standing "leaning over" the ♀.

M (sometimes followed by Ch) often given by ♂'s, after collecting w. m, as they go toward what appears to be potential nest-site. Appears to be a form of "calling" the ♀ ♀ often follows ♂, often joins him w/ Ch at nest-site. (I cannot definitely say that the ♀ ever gives M, in any circumstances, but, of course, it is probable that she does.

dominicanus

December 21, 1955
Santiago Zoo

The O part of the L.C. is remarkably polysyllabic. When "complete", it includes at least 6-7 notes, often up to 9-10.

The L.C. is so closely associated, very often, with the M call, that the relationship between the two is particularly clear.

Once heard an HD with "typical" M note instead of usual note. Have also heard HD-O-repeated M notes several times.

One bird does definite Gart (unritualized - as usual) when disturbed by my approach. Still... hostile Garts seem to be relatively uncommon in this species (at least, as compared with belcheri)

One bird does rapid preening movements when I approach. Obviously unritualized, but probably not "coincidence"

An appreciable change in apparent proportions during V and O displays: head, neck & foreparts (i.e. the white areas) appear relatively larger than during "relaxed" posture. I.E. the bird doesn't look nearly as long and "heavy" winged

A small, immature, bird (brown wings but black back) gives complete L.C. with relatively "pure" high-pitched notes, sounding much more like L.C. of Kenny Gull.

Same bird, or another in same stage, gives T just before HD-O in hostile situation. Have seen other T's by immature in hostile situations ("Keeow" type)

December 24, 1955,
Punta Arenas

A lot of these birds, adults & immatures of all ages, on the various beaches along the waterfront of the town. Quite active. Have seen some interesting aerial behavior

A group of birds flies up when I approach. Some vague circling around me. One of the birds does slight unritualized swoop and soar (not as extreme as the most exaggerated Ring-bill swoops and soars) "in vacuo". Lens of LCN's during swoop (flying); slant during soar (wings set, motionless, in slight dihedral.

Walking along street when two birds (possibly pair?) fly high overhead. Both give complete L.C. One or two pulmonary notes, three-&-notes. Only posture was a not-too-extreme O. Wings continued beating throughout performance

Heard one of a group of birds flying near me give 4 syllable ALC "Ha ha ha ha." Typical large Larus quality. (There is no doubt, however, but that the ALC is relatively rare in this species; much rarer than in any other gull I know.)

December 24, 1955,
Punta Arenas

maculipennis

A smaller number of these birds around in much the same places as the Kelp Gulls

Many LCN's, by both flying birds and birds on ground. Very reminiscent of the Andean Gull; but somewhat more like the Big. High & shrill, but not so much so as the usual LCN's of the Andean Gull. "Rattle" undertone, slight buzzy effect. "Kreeee" or, more often perhaps, "Kreeaar".

maculipennis, Dec. 24, 1955, II

Have also seen a number of displays on ground, but not very well or very closely. The birds aren't very active.

LCN's usually from relaxed posture by birds on ground; but I have seen one bird give a burst of LCN's from a V or semi-V posture before or during attack. (Very reminiscent of the Andean Gull)

Many "alert" postures. Some of which were probably aux. V's; capi just visible. A few possible low-intensity agg. V's; capi just visible.

Definite O's seen several times. Very much like Andean Gull. Perhaps a slight trace of "inverted arch".

Seem seems to be an F in this species, but I have only seen the briefest examples at a great distance. Once a brief F int mov → O → F int mov. Otherwise F alone. Once quite extreme, but rather straight-necked.

One semi-F semi-H with trace of R.

In general, this species looks remarkably like the Big Dó' closest relative, however, is probably the Andean Gull.

Much T'ing and HB'ing by birds feeding near sewer outlet. Both movements apparently accompanied by relatively soft version of LCN. This is presumably the FB cry. Obviously both T and HB contain a hostile element in these circumstances. (Before I forget — it might be worth stressing the fact that HB, or, at least, frequent HB, appears to be a "diagnostic" characteristic of the ridibundus group.

December 25, 1955,
Punta Arenas.

maculipennis

Seem are a lot more birds here this morning. About 20 or 30 by the sewer outlet. Quite active.

I think that it might be better to say that the voice of this species is almost exactly intermediate between that of the Andean Gull and Bonaparte's Gull. Has a definite and conspicuous hint of the buzz of the latter.

Many O's and F's in the crowd this morning. Both are very similar to those of the B.-h.G. in form. Many F's by themselves. If O and F occur together, the usual sequence, as expected, is O → F

Many O's before attack.

V-HF after attack.

There's still a good deal of apparently hostile T'ing from it. ("Jeering" is really the wrong phrase here — the backward movement of the head is very slight. I.E., the performance is like the low-intensity T'ing of the B.-h.G.)

A couple of F's or semi-F's (very little "inverted arch") before attack.

Some of the aerial LEN's are particularly long & quavering — but most are short.

Almost all the birds here are in complete nuptial plumage, but a few are in complete "winter" plumage, and some have mottled heads.

Have heard several mono- and bi-syllabic ALC's by flying birds "Kek" or "Kek-Kek". Typically Hydrocoloeus in quality.

Trying to hear the sounds accompanying the ground display postures. Rather difficult, as voice is not too loud and the situation is not too good (lots of waves, and trucks moving along road.

The numerous brief O's that occur, by themselves alone or followed by brief F's, are often accompanied by a single long drawn, buzzy, not very loud, "Kwaaaarrr" (i.e. 1 B. Sometimes 2 such notes, but this is relatively rare. (The fact that the "typical" O is "monosyllabic" is rather surprising.)

The numerous brief F's are accompanied by shorter notes, usually one or two, sometimes more, varying from "Kree" to "Krrar" to "Kwarr". Also buzzy.

I have also heard a number of apparently complete L.C's, i.e. vocal performances including many more notes. These sounded very much like the L.C of the Andean Gull. Never saw them very well; but in at least 2 cases accompanying extreme O → extreme F patterns.

FB note is sometimes just like F note (and both of these are obviously nothing except long LCN's). Sometimes, however, it is a higher-pitched, shriller, "Kree". Less buzzy than many F notes.

Both F and FB notes are relatively loud; at least as loud as O note.

I have heard some quavering long-drawn notes, very reminiscent of PC or M notes of other gulls. Almost "Kree-a-waaar" sort of thing. Not sure who was giving them from what posture. They be just a type of O note.

There seems to be a laughing call. About 4 or 5 descending LCN's

— — — —

In general — close up — the notes of this species can be transcribed quite well by Kuhman's terminology of "Kwear"s and (for low-intensity long LCN's) "Kwap"s. The only thing this ignores is some of the shrill high-pitched notes.

Apparent M.C. of O → F → V + HF → walks away in V → Gr → flies off of O → F → V + HF (These O's, F's, and V's are very extreme). V as in BHG. Moderate to agg.

bill not wide open →

← This is the typical long O posture.

Very BHG-like

Extreme O's are probably characterized by the fact that the bill points more strongly upwards.

The "inverted arch" effect doesn't appear until the transition to F. Then it is conspicuous, bill vertical or nearly so.

This O posture is often modified just before or during attack. Just as in B.h.G. Head & bill become horizontal, or even point downward. Just as in my drawing in theirs.

There is an attack call as in B.h.G. A somewhat staccato, slightly "broken up" version of LCN.

Must repeat and emphasize how obviously aggressive the O is. As in B.h.G. Very, very common before attack.

F is just as in B.h.G. Most of them in these circumstances are obviously low-intensity, short-necked, bill horizontal. But I have seen some quite as extreme as any of B.h.G.

Carpal joints are held way out during extreme O's, F's, and V's (turtle effect), but this is rare in these circumstances. Usually, here, the carpal joints are just barely visible — if at all.

Some of the semi-F, semi-H, postures are accompanied by slight R, but this is relatively rare. It may be that all F's are accompanied by slight erection of mantle feathers, but the back usually remains "smooth" if somewhat "swollen".

Descriptive notes. Hood appears to be same color as that of the B.h.G. Possibly the darker posterior border is less distinct. (Oh close look, quite a lot of these birds show a few white feathers near bill — presumably the beginning of the post-nuptial moult.) Eyebrows are relatively small. Outside of bill dark crimson, (inside of mouth nearer vermilion). Feet & legs crimson, perhaps somewhat lighter and brighter than those of B.h.G., (although this may be due to the fact that the birds are in a late phase of the breeding cycle. General effect of wing-pattern much like that of B.h.G., (see accompanying drawing). Some of the birds still have a rosy bloom on breast & belly. Proportions appear to be much the same as those of B.h.G., but bill is probably shorter & thicker.

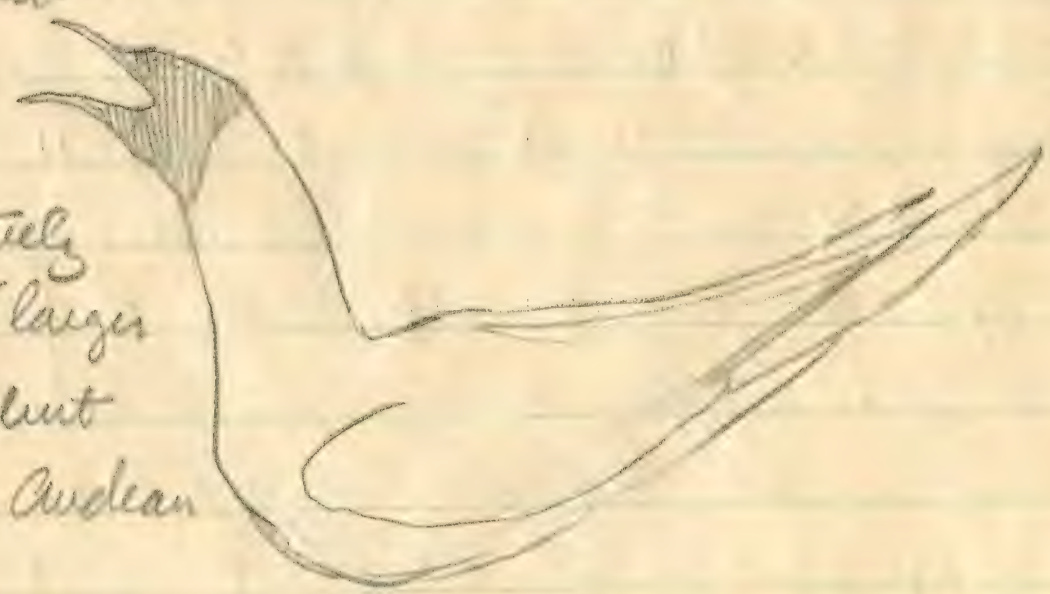
maculipennis, Dec. 25, 1955, IV

Many of the O's & LCN before attack are not modified; i.e. no trace of "attack Note" even at the very moment of pecking an opponent.

Many birds land in group without a landing call.

There is a good deal of "PAG" in hostile situations. Birds peck downward very quickly. As they are standing in water most of the time, and in a good feeding area, these pecks are often transformed into dunking or feed. Also sometimes accompanied by slight head-shaking — then the whole thing looks like "cleaning" the bill.

Have seen a good many more O's now. Some high intensity, with or without infrequent F's. Only one peculiar feature. Body is usually, (perhaps always ??) horizontal or even slightly tail upward. Very reminiscent of Andean Gull.



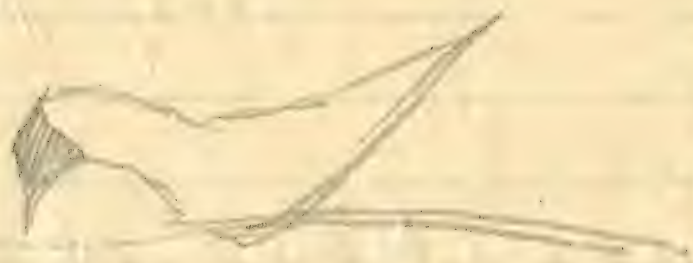
Body looks relatively large in this posture, (larger than in other postures, but not as much so as in Andean Gull.

Some rather high intensity-looking O's are <u>not</u> accompanied by raising of the crest.

I have seen no sign of "tail-raising" above the wing-tips.

I haven't seen any Chasing either, although the birds often stand in a posture that <u>looks</u> rather "pre-chasing".

Have seen Chiloeng — but unfortunately by bird standing almost belly deep in water. Usual form & movements. But tail not as high as in B.h.g. or Andean (poss. due to water)
Couldn't hear sound, but bill was very slightly open, and the bird may well have been uttering very soft, rhythmic repeated, muffled notes.



Have heard a few trisyllabic ALC's. But they are still relatively rare (This is certainly another point of resemblance to Andean Gull)

May possibly have heard a 4 syllabled ALC.

The "Attack Call" might be transcribed as "Kakakakak". May rapid. Obviously a "fragmented" LCN. (Note resemblance to Belcher's Gull!) This leads to a certain amount of confusion; as it is very difficult, perhaps impossible to distinguish between the Attack Call and a 4 syllabled ALC.

Also again impressed by the obviously hostile nature of the FE note from H or with HB from semi-U. Even used by birds returning to attack.

Have seen several F's, and even more H's, or semi F' – semi H's, in hostile circumstances, with R (definite, but not too extreme)

The LC of this species is certainly somewhat peculiar. Relatively few notes. I have seen many apparently extreme O → F performances with no more than 5 notes. One or two long-drawn, very buzzy notes, with moderately open bill, in O; followed by about three shorter notes, buzzy but also very plaintive notes in F. (The transition between the 2 postures is relatively rapid — and is usually covered by the latter part of the early, or second, O notes) Bill barely opened during these plaintive F notes. Tail widely spread during these F's. (Another point of resemblance to the Andean Gull).

These plaintive F notes are very different from the notes uttered during buffets, Comes-intensity F's (F's by themselves alone, or associated with brief O's). The latter are higher-pitched, shriller, not plaintive. Bill

is opened widely during the shrill F notes, (and possibly the tail is not fanned — or, at least, fanned less widely)

Rhythm of "typical" L.C.'s might be represented as

_____ _____ — — — or

_____ — — — (I haven't indicated pitch in these diagrams, because it is difficult to distinguish in such peculiar, un-human-voice-like sounds. I suppose that the F notes might be shown as lower pitched than the O notes, but there is certainly nothing like an evenly descending series of notes. All O notes same pitch, and all F notes the same pitch).

It is possible that some O's, particularly prolonged, may have 3 notes, but this is very rare — if it ever does actually occur.

The overall bestiale semi-H or H postures, with R, with long LCN notes (or "LCN" in broad sense — including FC notes and shrill F notes — if any of these can be really distinguished from one another) are very reminiscent of the Andean Gull also.

December 27, 1955,
Bay of Pomeroon

maculipennis

A little pairing behavior on the beach in the rain. MC's of O → F → V & HF, and just V & HF.

After the ♂ flew up, chased another bird via undirected powered flight performance. Rapid horizontal chase by pursuer, giving LCN's, notes intermediate between LCN and Attack Call Note, then an Attack Call Note. Followed by very short fwoop, and a moderately short foar (at first flying, then gliding). Attack Call Note continued into the fwoop, LCN's during first part of foar, silent during last part of foar. (The simple, short, nature of this fwoop and foar probably does

mean that the hiccup & form of this species is necessarily relatively little exaggerated. This particular bird was very aggressive, and one might expect him to do relatively little in the way of display. His behavior was very close to "pure" attack)

Had a good view and hearing of M. Pig ♂, after M.C. stood in V. On put head to ground (only approximating a typical M posture, if that). On stood in "pre chirping", semi-V, tail up posture. Bill closed or almost closed. M notes might be transcribed as "Wawaah", but essentially un-transcrib-able. Rather muffled, but not very plaintive. Very strong, rolling, "undertone" of "r-r-r-r...."

All behavior by adults in nuptial plumage — unless otherwise noted.

a.m. December 29, 1955,
Pawnee Bay.

scorebii

Watching a group of these birds along waterfront feeding in a crowded mass on beach, then fly to rocks in water to rest a while. Adults in nuptial plumage, almost complete nuptial plumage make up about 1/3 of the birds. Adults in winter plumage, or almost complete winter plumage, make up another 1/3. Juveniles (and/or immatures ??) make up the rest.

These birds are quite remarkably stolid. Have seen quite a bit of low-intensity "pure" fighting or attack behavior, and quite a bit of "pure" retreat & escape; but the birds do remarkably little in the way of displays.

The pure attack is quite conventional. Forward & upward peck & usually (like my drawing of "semi-O" in B.h.G. thesis). Bill opened widely but briefly during such pecks. Conspicuously crimson both inside & outside. (On outside, darkest & most brilliant toward tip, pale, almost flesh-colored, toward gape). I don't think that this can be a real ritualized "G" pattern.

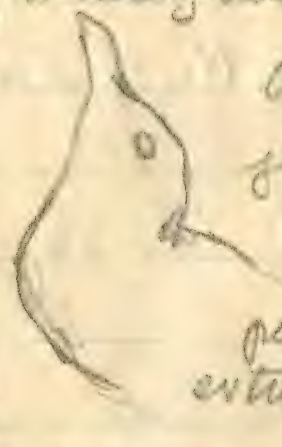
Usual "Alarm Posture." Usual forms of retreat & escape.

Have heard quite a number of Al C's, but they may all have been

low-intensity. A single harsh note; or, rarely, 2 such notes. By flying adults or adults on ground (in alert or relaxed posture, I think) Very harsh & hoarse. Sometimes note can be transcribed as "Kek", but sometimes "Walrk"

Well! Have just heard adult, nuptial plumage, on ground, give "Keh kek kek" Al C. Just like Belcher's Gull Al. C.

The commonest hostile pattern here is T! By juvs and also by adults in all plumages. Quite well-marked. More extreme than most of the hostile T's I have seen in the Patagonian B.G.'s here, but less extreme than the most marked T's of Franklin's Gull.



Accompanied by T note, juvs, a soft, almost apparently the same in both adults and unmitted, "Kleeoo". Bill opened very slightly and very briefly during the note. The most interesting thing about this T, however, was its immutable hostile nature (in all cases — no trace of FB), and the frequency with which it was given by the attacker after attack, (in about half the cases seen — perhaps 75-100)

perhaps the most extreme I have seen so far.

No carpi-raising with T.

Some of these T's may have been silent. At least the call was very soft and the bill apparently closed throughout.

Have heard Tursyllabus AC by flying birds.

Now we get to the LCN - L.C. burners, which is rather complicated

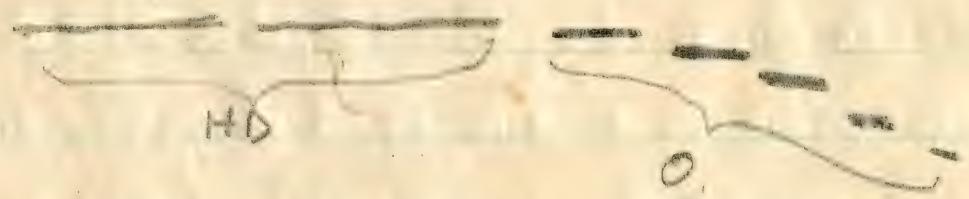
Aerial LCN is usually hoarse and harsh. "Haah" to hoarse "Keow". Often given by bird flying near me. Then usually single notes or several notes with some pause between them. Have heard a large number of notes given by flying bird chased by a Kelp Gull (food calling) and these followed one another in rapid succession, with almost no pauses between notes. Given from usual posture or lack of posture

Ground LCN is much the same. Usually single same variation. (It seems to me that the LCN's of this species are extremely variable) Given from "relaxed" posture, or semi-V, or (rarely, I think) from semi-O. Obviously hostile, but not, usually, in immediate association with either overt attack or escape

Juv. LCN is the usual Laughing "Kee-a-a-a-w", with definite "rattle" or "reedy" quality. Quite frequent on ground, and I have heard it in the air. Given from usual postures. Have seen one definite case, and several probable cases, of juv. LCN before attack — T & T note after attack.

Complete L.C.'s are rare, but there have been at least 6 in the group here this morning. Have had good views of 2 by adults in full nuptial plumage. Definitely the large Larus type!! HD-O sort of thing. The HD posture itself appears to be rather peculiar (although the cases I saw may have been only low-intensity — but I rather doubt it a little). Reminiscent of HD of great flock, or even O of Felton & Hartlaub's Gulls. Neck stretched upward & forward, head & bill pointed downward & forward.

HD accompanied by two notes "Kuccoo-Kuccoo" or "Kluco-Kluco" Quite "pure" in tone. This is followed, immediately by O (in all the cases I saw hardly more than semi-O). This is accompanied by 4-6 rapid, almost "pumping", hoarse, hawks, "Hah hah-hah-hah" notes, getting progressively deeper in pitch. The whole L.C. might be diagrammed as:




Carpal points are visible throughout the L.C. These L.C.'s were obviously hostile. After real fight in disputes over food and perches.

Might add some remarks about adult (both nuptial & non-nuptial) LCN, before I forget. Some LCN's are quite "pure", Herring Gull-like. Others are so short and hawk that I have trouble distinguishing them from

scourlii, Dec. 29, 1955, IV.

the bands Al.C. notes.

An interesting "L.C." performance by juvenile (probably — possibly an adult in non-nuptial plumage — but I doubt it). During dispute over a resting spot. Juv. sitting down. Goes into HD posture (like that of the adults in nuptial plumage), utters one very "reedy" (almost pure rattle) juv. LCN, then gives four T's with T notes. This is probably most significant in connection with the L.C. of the Ring-billed Gull.

I have seen several cases of HF (single movement) after attack. Either unritualized or very low-intensity. From relaxed posture (semi-V) or low-intensity V. Sometimes precedes T in these circumstances.

I have seen a number of "V"s. Either unritualized, or, more probably, low-intensity. Some semi-agg. (bill like this →), during aggressive charges and after attack. Some rather anx., difficult to tell from "alert" posture (bill like this →), by retreating birds during disputes. In no case were the carpi more than just visible.

Must stress the fact that even the T's that occur during feeding are apparently purely hostile. Closely associated with actual fighting. For train of FB (i.e. one bird faces another and gives repeated T's — almost all these T's are unfamiliar — if not they are unmistakably associated with fighting)

p.m. Return to the same place. Same amount of birds, doing same thing.

More about L.C. performance on ground. Saw one bird do L.C. just like this morning, HD-O, then followed by definite T movement, extreme, with LCN, not T note. This bird was adult in complete nuptial plumage. Another bird, adult in almost complete nuptial plumage, gave repeated bouts of O notes (about 3 or 4 in series) from semi-O posture, nothing more, during various disputes during feeding. Bill closed during at least one of these bouts, (and the notes did sound muffled. Same bird, (he was particularly aggressive), also gave the most elaborate L.C. performance I have

seen yet. O – HD – O !! Two notes during the first O, regular O notes in quality but separated by a somewhat longer pause than the notes accompanying O's after HD's, (which almost run together) HD notes and series of notes with second O, much as described before. Whole call can be diagrammed as follows

— — — — — — — — — — All the O pattern during this performance, (as well as all the other O's I have seen today) are remarkably low-intensity in physical appearance, look like semi-O's of other species, head horizontal (more or less), but neck definitely vertical forward. As for the HD pattern, I was again struck by its resemblance to the O of the Herring Gull, head & bill "very close to neck", pointed vertically or almost vertically downward. Corpus definitely lifted out, slightly, during HD.

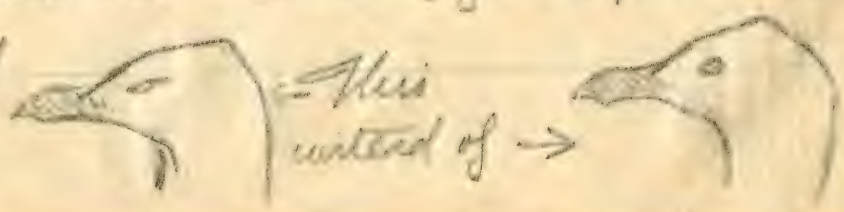
Heard the same call as this last, 3 places, 3 times more. Possibly given by the same bird, but I couldn't catch the patterns.

Before I forget, an incident this morning. When we first stopped the car, one of the birds in the group stood in semi-V, gave repeated LCN's of the purer "Kee-ow" type, opening & closing bill with each note. At least 10 in series.

Note about ALC notes. Often occurs in much the same circumstances as the ALC's of other gulls (i.e. pot. pred. obviously approaching), but also seen in other, possibly different circumstances. Sudden outbursts in group sitting quietly when I haven't moved, and I can't see any dog or man approaching. Burst of ALC notes (single, repeated) by bird flying in to land in group. Would this suggest that the ALC of this species contains a relatively stronger attack drive than that of others ?? (Remember that ALC and LCN of this species seem to intergrade)

I wonder if the "complete" L.C. performance of this species is O – HD – O – T ? Would be very nice, from a comparative point of view, if it was.

Note about the very low-intensity V's I have seen. The "egg" type, after attack, show trace of an "aggressive head-set" Narrow, from top to bottom, no front, and slightly "crested" behind



scoresbii, Dec. 29, 1955, VI.

General conclusions about comparative significance. The L.C. behavior of this species definitely puts it into the large Larus group. Morphological features would suggest that its closest relative is Belcher's Gull. Some aspects of its behavior (i.e. the hostile T patterns) are somewhat reminiscent of the hooded gulls; and it may be that this is the closest thing there is to an "intermediate" species between the two main groups of gulls.

General notes about the physical appearance of the species. It looks like a short, small version of the large Larus species. Almost like a large pigeon with a coarse bill. (This bill is thick & short, but much less massive looking than I expected. Less massive-looking than I expected). The bird appears to be somewhat shortnecked. Doesn't convey the impression of short compact body like Belcher's Gull, but doesn't look at all long-necked either. Rather nondescript, in fact, and not very attractive proportions.

December 28 & 29, 1955.

dominicanus — Calleta Jorfuia and Pomeroy Bay

Notes on some aerial behavior by birds put up by me. Complete aerial L.C.'s are common in these circumstances. Haven't been able to see the accompanying postures in most cases, but in one case at least the aerial L.C. was accompanied by both HD and O postures. The HD posture was less extreme than my drawing of the aerial HD of the Herring Gull — more like my drawing of the aerial M of the Herring Gull.

December 29, 1955,

maculipennis — Pomeroy Bay.

Have seen some pairing behavior!!! ♂ hunted by 2 females in a row. (Second ♀ approached on foot. I didn't see the approach of the

first q.). On beach - 2 elaborate MC's. Both mutual O → F → V + HF. The first & then HB'd repeatedly from V's before flying off

These F's were very extreme. As extreme as any I have ever seen in the Blg. Bill pointed strongly upward, base of neck very low, neck as a whole moderately long, carpal joints held way, way out.

The ALC notes of this species are particularly loud, harsh, & sharp. Just about as much so as those of the Dolphin Gull

December 30, 1955,
Pomonie Bay.

scoresbii

a.m. Same place, same group of birds

The ALC notes of this species are particularly loud, harsh, & sharp. Found very much like those of the Patagonian Blg., but perhaps somewhat deeper in pitch (on the average). Have 2 species certainly have the most emphatic ALC's of any gulls I know.

Like so many gulls, birds of this species almost always give an LCN note when flying up from group. Almost always one of the harsher, coarser, type.

Have seen two more L.C. performances. One HD-O like yesterday. (This bird was adult, in full nuptial plumage). One HD-O-HD-O-T-T These T's with T-notes. (This bird was adult, in half winter plumage).

One juvenile flying about, by himself, in quite an extreme Erratic Flight. Much the most extreme I have ever seen performed by a large Larus gull. (Not as extreme, however, as the most extreme performances of the Blg and Bonaparte's Gull — tailed the spectacular neutral plumages were)

All the birds fly up when a Harrier flies overhead. He was obviously alarming but not too very intense. The whole performance can be classified as a low-intensity Silent Panic. Birds flew up with a few ALC notes, flew together, flew out over water, circled and separated, landed again

I have seen quite a bit of pursuit flight behavior. One gull chasing another, or a gull chasing a Shag. Usual form, quite interesting. A fair amount of twisting & turning, sometimes accompanied by slight, obviously unrealized, aerial, short & shallow, swoops and "flying" bears.

More about the T performance. I have seen one bird, at least, do several T's immediately before attack. Most of the T's do not seem to provoke any reaction in the birds toward which they are directed, but some of them appear to be intimidating, inducing the bird toward which they are directed to flench or retreat slightly. I have seen some more extreme T's. They are obviously high-intensity, as are, but not all, of them being T's after attack. Most of the T's after C are also high intensity. Like this.

I have come to the conclusion, in retrospect, that the "gentle" or "stolid" appearance of these birds is really quite misleading. Brief attack behavior is really quite common. And T's are very common indeed. (Most of them are slight.) There seems to be little doubt but that the hostile T's "take the place of" of the LCN's of other species. (LCN's are relatively very rare in this species — at least when the birds are on the ground).

Most of the T's are given from a very short-necked, "relaxed" (almost H posture). Head isn't usually thrown back near them. I have, however, seen one case in which a bird gave T from U. This T from U was very reminiscent of HB. Back of head brought down as the bill went up.

9 x. Have seen four more L.C. performances, all by birds in complete nuptial plumage, (these are entirely more active than the other birds). First, a bird went into "low-intensity O posture" (see below) gave a burst of muffled O notes, with bill completely closed, then did 1 definite T, with T notes, bill still completely closed. There was no trace of HD in this performance, (incidentally, this was definitely not the one bird that did L.C.'s without HD yesterday); and the fact that O's can occur without HD, and not, apparently, the reverse, would suggest that O's are lower intensity than HD's. The next L.C. was HD-

scoresbii, Dec. 30, 1955, III.

O-T-T (both T's with T notes). Form just like yesterday. The other 2 L.C's were both HD-O and nothing more. Again noticed raising out of carpal joints during HD, (probably the carpal joint is opening a little, during succeeding O's). Bill certainly remains widely open during high-intensity O, no trace of any opening or closing in rhythm with notes. I think that the same is true during HD. It is possible that the bill closes slightly between HD and O, but I very much doubt it. I think that the bill does or almost does before first T, and it certainly does between T's. All the O's in this series except the first were "high intensity O postures" (see below). One thing about all the HD's and O's I have seen so far is very striking — they all look very short-winged. This may be due to the fact that I have only seen low-intensity forms of both patterns, but I doubt it. I think that this appearance is due to the proportions of the birds themselves, this species is very slender.

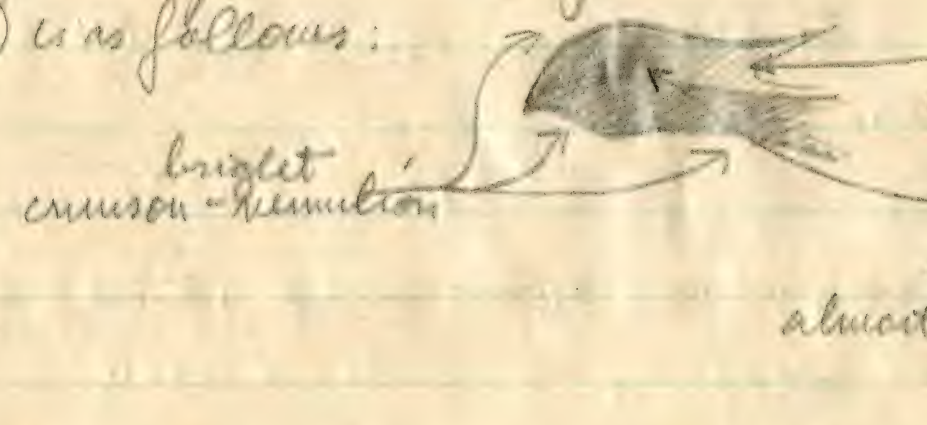
The low-intensity form of O appears to be very diagonal — like the sketch I drew yesterday. It usually occurs when there is no HD, or when the O is short and the accompanying sounds are weak, (although there are exceptions). It is interesting, therefore, that this O appears to be identical with the posture from which these birds usually deliver brief peeks, (although the bill is seldom opened as widely during the low-intensity O's as it is, briefly, during peeks). The high-intensity O posture is like this: (like V with curved wings) (see below). This posture may also occur during flights, but only in the relatively rare (in these circumstances), when an actual mutual scuffle develops. It is certainly much like the posture from which actual peeks are delivered during such relatively intense attacking.

Note about Al C notes on ground, (and presumably in air also, the bill is quite widely open and shut with each note.

As a result of today's observations, I would say that the "usual", "complete" form of the L.C performance was HD-O-T, (with T not infrequently repeated

scoresbii, Dec. 30, 1955, IV

A few more notes about the physical appearance of these birds. Adults in complete nuptial plumage are almost white at base of bill, have white eyebrows which are fairly conspicuous. Red eye-ring quite noticeable. Light eye. Dark hood of adults in winter plumage and juveniles is very conspicuous, but perhaps less extensive (doesn't appear to reach quite so far down neck) than that of Belcher's Gull. These birds also have white eyebrows. (The white eyebrows are fairly thin & small). There is one of the species, Blue Belcher's Gull, in which the adult has white in front of carpi, forming an "outline" conspicuous against black of wing, and, in part, against black of back. The pearl-gray tinge, incidentally, appears to be darkest at base of back of neck. Color of bill (in the most vividly marked birds I have seen) is as follows:




dominicanus

December 30, 1955
Powell Bay

Juvenal bird, apparently first-year, (quite brown, with light markings), flies in pursuit of a shag, then wheels off, flies toward group of gulls on ground, gives complete aerial L.C., lands. This L.C. was quite like that of adults, except that the notes were somewhat "reedy" in quality. As far as I could tell, the only posture accompanying this L.C. was a neck curved slightly upward and stretched way far forward. This sort of thing ← Normally distinct HD or O

Further evidence that juvenal gulls are quite "capable" of producing elaborate hostile displays like those of adults. It is just that they usually don't in the circumstances in which they usually find themselves

Have seen quite a few more cases of aerial L.C.'s by adults today. Usually birds flying over me, and obviously disturbed. Can definitely state that the wings continue beating throughout most (and probably all) aerial L.C.'s. One interesting case. Adult bird, with food in bill, was pursued by another adult bird. Very rapid, prolonged pursuit. The pursued bird uttered 2 or 3 or 4 complete L.C.'s during the chase, none of which was accompanied by ritualized postures.

A note about pursuit flights. I have seen quite a number of them in the course of the last few days. Much rapid twisting & turning. Possibly a few short, shallow, obviously unritualized, swoops with beating wings. A few short, shallow, obviously unritualized, soars with beating wings and "gliding" soars.

all patterns by adults in complete nuptial plumage, unless otherwise noted.

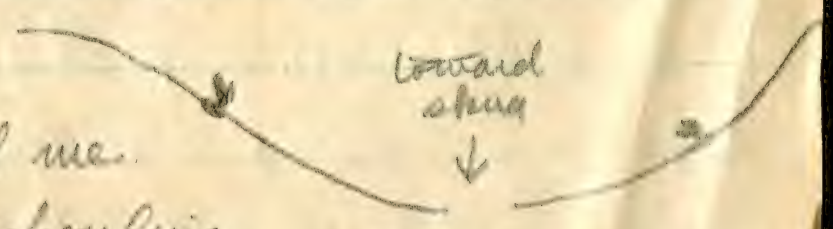
December 30, 1955,
Pomeroy Bay.

maculipennis

Have seen several more cases of M.C.'s of O → F → U+HF.

Have also seen several cases of O → F by birds on ground toward flying birds. Just like B.h.g.

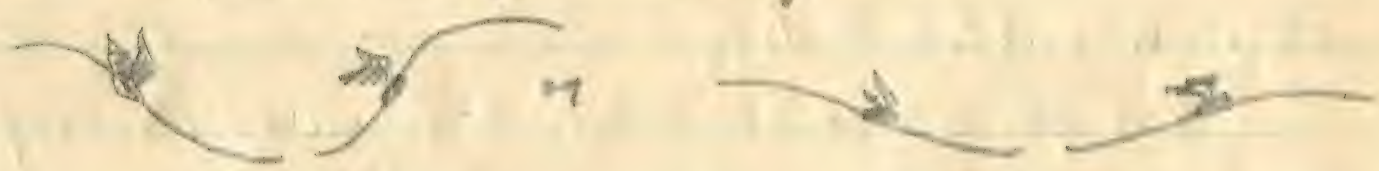
This species also has a definite ritualized swoop-soar complex. Have seen several forms. Once, a bird chased a shrua in air, made repeated, very long, gently sloping, swoops (flying) and soars (both flying and gliding) at the shrua. These were almost as extreme as the most exaggerated swoops and soars of the B.h.g.




Also some interesting behavior toward me. Quite a number of birds, flying by along the shore line, have stopped to circle me. Have uttered usual aerial LCN's, ALC's, and, also, many particularly long LCN's, slightly quavering, almost "Kee-a-woar" notes. These are probably PCC notes. Sometimes, at least, accompany-

ied by wing-beats of slightly greater amplitude than usual.

Some birds circling around me have also performed short, shallow, flying swoops and flying or gliding bears. Some of these are indicated in vamo. When the swoop is accompanied by PCC notes, and the bear is accompanied by weaker PCC or LCN notes. Sometimes, however, these swoops and bears were directly orientated. When the swoops were accompanied by a most peculiar series of notes. Several times, at least, different birds did ALC note → ALC notes → attack call during swoop. This sequence of calls suggests that the ALC notes of this species, like those of the Dolphin Gull (!), may contain a relatively stronger attack element than the ALC notes of most species of gulls. It also, in all probability, supports the suggestion that the "attack call" of the richardsonus gulls is really a "combination" of ALC & LCN, or, rather, that the attack call is a less fragmented version of the LCN than is the ALC. (I must admit that I have great trouble in distinguishing the attack call of this species from a very rapid series of ALC notes). The bears following these swoops were accompanied by PCC or LCN notes. The whole swoop-bear performance in these circumstances can be diagrammed as follows:



I am fairly certain that the buzziest or "twangiest" aerial LCN's, those that are most like the LCN's of Bonaparte's Gulls, are uttered by adult birds in non-nuptial plumage and/or immatures.

I still haven't heard any trace of a complete aerial L.C., although I have heard several birds utter long series of LCN's in very rapid succession. All the notes were more or less uniform in pitch: — — — — — —

December 31, 1955,
Pomona Bay.

c. nr. farm birds, same place.

Another L.C. performance. Thin Trill by immatures, (still with brown on upper wing-coverts), of HD - O - T with T note — T with T note. Exactly the same as that of adults, in posture and voice.

The LCN is remarkably rare in this species. There are hours, during which hundreds of T's occur, during which there aren't more than one or two LCN's, at most, in the group of birds feeding on ground.

The V, and the HF, are also extremely rare, (and the HF is rarer than the V). There may be 20 or more of these, all very low-intensity, for every one LCN in the group of birds feeding on the ground.

The only time at all when the LCN occurs with any appreciable frequency is just as the birds fly up. Then it is almost invariable. Probably also more common among birds flying along than in birds on ground.

I might add, just to make things clear, that the voice of this species sounds not if it came from a much larger bird. Rather similar, in fact, to that of the Herring Gull, bits the "hoarse" quality which is particularly reminiscent of the latter.

Another L.C. performance, by adult in almost complete nuptial plumage. Simple O, "low-intensity O posture", diagonal Bill open, notes not muffled.

Juv. does Juv. LCN → T with T note after attack.

Have seen several cases of T after escape by adults in nuptial plumage.

Thus the T's in immediate association with either attack or escape can largely be divided into the following categories: a great many after attack, a few before attack, a few after escape. This would suggest that the T pattern is low-intensity, with the attack & escape drives about evenly balanced, or, just possibly, escape very slightly stronger than attack. There is certainly no indication that escape is very much stronger than attack. Thus, this T appears to be roughly comparable to the T of captive Laughing Gulls (and the TT of the Ring-bill ??), and, to some extent perhaps, the HF of many species.

Another L.c. performance, by adult in complete or almost complete winter plumage. HD (notes harsher than those previously described, more or less "Kreeaar Kreeaar" → O (very brief, only one note) → T with T note → T with T note.

The fact that HD may occur without, or with very little O, might suggest that the difference between HD and O is something more than a pure "intensity" difference.

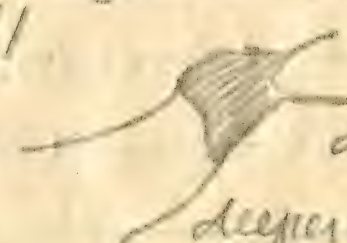
I have seen several very slight R's of mantle feathers after attack by birds in semi-U or continuing feeding, (adults of all stages and juveniles). Only in the case of one juvenal, however, was this R at all conspicuous.

December 31, 1955,
Porcupine Bay.

macalpinnis

A lot of miscellaneous stuff seen today.

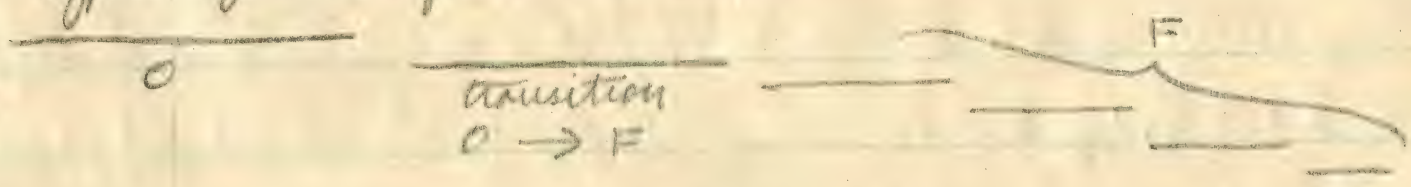
A flying bird, with food in its bill, chased by Kelp Gull. Much twisting and turning, finally forced to drop food. Then flies away, uttering long-drawn LCN notes "Keeeaar Keeeeaar." These sounded very high intensity, rather less quavering, however, than the notes I called PCC notes yesterday (Actually, I doubt if anything like real PCC notes should be distinguished in this species. The notes I have been calling PCC notes, although almost certainly homologous with the PCC notes of other species, are probably nothing more than high-intensity LCN's in this species). The interesting thing about this performance, however, was that the first 2 long notes were delivered from an extreme aerial O posture!!! Accompanied by beating wings. Plunged smoothly into progressively shorter notes, progressively deeper in pitch, as the bird circled and landed (Thus the whole series of notes can hardly be called a complete aerial Long Call — the last half was a Landing Call).



Another, somewhat similar, case. Again a bird with food in its bill chased by Herp Gull in long pursuit flight. This time the pursued bird uttered a whole series of these long LCN's, in extreme O posture, with the food still held firmly in its bill!

Have seen several more M.C's. Both O–F–V+HF and V+HF types. Have seen two different birds, during M.C.'s do O → F+HF → V+HF. Heard a flying bird utter an aerial LCN just like "Zwarrr" of B.h.G. The Sounding Calls of this species are really remarkably elaborate. Quite as elaborate as ground L.C. (and sound just like some ground L.C's) — — — — — — sort of thing.

Speaking of ground L.C's, (and this may be a repeat), the usual series of notes is certainly one of increasing brevity and depth of pitch. A very common type might be represented thus:




The nearest thing to "sexual" behavior I have seen recently is mutual "FB". Both birds T'ing from H. Then ♂ goes up into V, does one extreme HB, relapses into T'ing from H. Then both birds relax & shut up.

Have seen another flying bird make a silent swoop (flying) and soar (gliding) toward a Shrike. This time, however, the Shrike was standing on the ground, and the swoop and soar, although moderately steep, were relatively short. Not repeated. (In general, none of the gulls seem to be as upset by the presence of Shrikes as are the Amer. Terns).

December 31, 1955
Porpoise Bay

There are quite a number of these birds here, and they are quite active, both in the air, and on the ground (and even on the water, but I haven't been able to pay much attention to them. They are around near the Dolphin Gulls

As far as I can tell their calls, and they certainly have a great variety of them, sound just like the Common Tern.

All the birds appear to be incomplete nuptial plumage, except for one or two with a little white on the forehead

They definitely have a threat posture. Often used as greeting. Looks just like that of their relatives, sometimes appearently silent. Often with a call "Ha-haa haa haa" I think the mandible opening and closing, notes. It is very the posture is fixed. Then the bill is slightly open, I think, in rhythm with the impression that, during MC's, them, presumably as the intensity summed with the call, and stops while the posture is still maintained. of something demanding, the call "Lower intensity" forms of the posture are characterized by lower, more nearly horizontal, bill. A premmed variant of the threat, possibly "lower intensity" or possibly due to different relative strengths of the hostile drives, is an Upright. This tends to follow the V during MC's. Both the St and V are often accompanied by Jolting during MC's. The less neutral forms of St and the V may also be accompanied by HF.

There is also a Scooping complex. Little bowing movements, very rapid, from St. The posture at the bottom of the bow is reminiscent of the "Bengistilling"; but less extreme. This bowing is definitely accompanied by the "Haa haa haa..." or "Ha ha ha ha...." call. The whole performance, with its call and its down & up movements, is very reminiscent of the Gulk of Franklin's Gull, (and also the pattern I interpreted as Gulk in the Elegant Tern. The only Scooping I have seen was performed by

both birds of a mated pair during a dispute with a neighbor on the mud flats where a whole group of birds was resting.

The "Ha ha ha ha ..." call is certainly also given by flying birds, but I don't know with what movements and postures, if any.

I have seen many times foraging at Bermuda in air or on ground. These foragers are always extreme, very, very, long. It is interesting to note that they are all followed by long, steep, flying bows.

December 31, 1955
Pomander Bay

dominicanus

Have occasionally watched a large group of birds feeding on mud flat near the outlet of small stream. The only thing that impressed me here was the frequency of M-notes in obviously hostile circumstances. Quite often given by birds not near their mates (I am not even sure that their mates were present in the crowd). All this very reminiscent of the Herring Gull. And I am sure I was right in tracing a connection between the M notes and the HD notes.

January 2, 1956
Pomander Bay

scoresbii

Have heard 2 more H. S. performances. Unfortunately without seeing the accompanying postures, but they were obviously HD-O-T (with T note) – T (with T note) and HD-S – T (with T note). The most interesting thing about this last performance was the fact that the S part contained at least 6, perhaps 7, syllables.

The usual performance, heard on the ground towards another bird of the same species flying – low – overhead is a T with T note.

Have seen a V+HF not after attack. By an adult in full nuptial plumage when an adult in winter plumage or a juv. approached too closely.

Well! Well! Well! This species does have a complete aerial L.C. Once heard it given by one of a pair of adults in more or less complete nuptial plumage flying way out in the bay. Once by an adult in group of birds flying over street who came upon me suddenly. Unfortunately in neither case could I see the accompanying postures. (How might have been HD and O postures, but I certainly can't tell). Both performances included "O" calls of many syllables (6 or 7 at least). In the case of bird over bay the wings continued beating through the performance. In the case of bird over street, there was a tendency to glide (don't know exactly when it began); but the bird was gliding in to land on mud flats anyhow.

There seems to be some retention of pair-bonds in the birds in the group here. At least, I have frequently seen 2 birds stick together, close, for long periods of time, without any signs of hostility.

I wonder if the fact that the birds almost always give LCN(S) when flying up from group is a sign that the LCN is not purely hostile, is still a sort of generalized threatening reaction???

I think not. I have just seen about 5 or 6 cases of birds flying up without LCN. And I think that it is obvious that the larger the group is, and the more tightly packed it is, the more likely birds flying up from it are to give the LCN. Must be hostility too.

Have just heard another L.C. Obviously HD-O

A slight correction to one of my earlier lists of description. This species does have a little white along front part of carpi (particularly underneath, toward the rear), and the light area that is particularly conspicuous when the carpi are raised is a streak of gray body plumage between front part of scapulars and the carpi. (I mean the light along carpi in all species, in shins)

Have just heard another L.C. Obviously HD-O-T (with T note)—T (with T note). Again a lot of syllables in "O" call.

Have seen several good cases of HF after escape. By juvs and adults in both plumages. One quick (not evaporated) movement.

This species probably has a hostile Goat pattern; but it is very difficult to distinguish, as I always see them on potential feeding grounds and the Goat movements I do see could be very easily feeding int. moves. Still-birds sometimes Goat when "nervous" at my approach, and sometimes when there is overt intraspecific hostile behavior going on in group; and this sometimes appears to be unconnected with feeding. I must say, though, that I don't think that they give hostile Goats nearly as frequently as the Belcher's Gulls I see - a month and a half ago -

January 3, 1956,
Near Gente Grande

## skua chilensis

The Hatch and I visited a large colony of these birds, very briefly, today. Found no eggs; all young apparently hatched. The young birds are found varied from a few days old to 1/3 - 1/2 grown. I didn't manage to see much behavior, but a few interesting facts emerged.

The ALC of the skua, even at apparently high intensities, is only a monosyllabic or bisyllabic, deep, moderately sharp, hoarse "Huh" or "Huh huh". (It is possible that trisyllabic ALC's occur, but I rather doubt it) The relatively few notes in this ALC would strongly suggest that few-note ALC's are primitive. (They have thus far been found in terns, all hooded gulls, with one or two possible exceptions, and two large gulls — besides the skua).

The inside of the mouth of a bird with a broken wing was light turquoise, or, rather, bright aquamarine blue.

The usual LC given by flying birds when we disturbed the colony was a 5 - 7 note affair. Notes deep & hoarse, deeper & hoarser than those of any gull I know, but otherwise similar. The whole performance might be represented as: — ▬ ▬▬ ▬ — (I am not sure whether it really went up in pitch in the middle, but it definitely did become strong-

er then). Unfortunately, I couldn't tell which birds were giving the call, (there must have been 50-100 all flying about rapidly usually high in the air), and so I don't know what postures & movements, if any, accompanied the call.

I saw all sorts of violent aerial hostility in this group of birds. Rapid twisting chases; aerial fights; fast, long, rather shallow swoops; a few gliding soars; a lot of flying soars, etc etc.

We were dive bombed (i.e. charged and/or swooped at) repeatedly by the enraged parents, (who soar again each time with a flying soar). The interesting thing about these attacks is that all were silent. The same thing is true of all the intra specific attacks I saw. This is most unexpected.

We picked up 2 chicks in our hands. One was at least several days old, the other was at least a week old. Both gaped & lunged, but were absolutely silent. Like some old Franklin's Gull chicks, after being held in hand a while. Quite in contrast to a young Felp Gull (about a week old) which we also picked up today, and which gaped, lunged, & screamed jiw. rattle "LCN" at us simultaneously.

January 2, 1956,
Pomeroy Bay.

maculipennis

A few notes on stuff I have almost forgotten

A bird flying around in air, uttering LCN's, moderately long, moderately close together, but the bird was definitely giving them from an extreme O posture. In other words, in this species, the extreme aerial O posture of this species seems to have become definitely associated with a vocalization which is low intensity in other species.

This, and the fact that I have seen all sorts of apparently high intensity aerial hostile behaviour without L.C., is beginning to make me tremble

maculipennis, Jan. 2, 1955

that this species doesn't have an aerial L.C. At the very least, the aerial L.C must only appear at very much higher intensities than some of the L.C's of, for instance, the Andean Gull and the Kelp Gull.

I have seen an extreme agg. Upright pirit like my drawing of the corresponding posture in the B&G in my thesis. Same rounded rear of head.

At last! Chalking. On a reasonable facsimile thereof. Bird in posture like less extreme Ch of B&G. Hitting rather muffled version of ICN's of the "Kee-a-wee" type. This is exactly similar to the "low-intensity" Ch. of the B&G with "or feeding call"!

The fact that I have seen so little Ch., and yet so much high intensity O and F, would certainly suggest that the Ch of this species is not appear at such low intensities of motivation as the Ch. of the Andean Gull. Must be more like the Ch. of the B&G in this respect.

I have seen several O's, as well as V's, before attack. It seems very likely that the O of this species, like that of the B&G, is often, at least, a relatively very aggressive pattern.

January 3, 1956,
Near Gente Grande

## fuiunchivaca and nica.

A few notes on the behavior of the S. American Tern, based primarily upon observations made along the coast here, in or near various breeding colonies, with some comparisons with behavior of the Inca Tern.

I noticed, in Pacasmayo, Peru, that the S. American Tern has a Bengalese-like song, but I can't say anything more about it.

The usual call given by the birds that fly above one's head when one enters a breeding colony is a succession of not-very-close together, very Common Tern-like, "Tee-ern" or "Keeee-aar" notes. Just like the Common Terns at Scolttead. This is the note which I always thought was

the homologue of the 2CN of gulls. It is certainly, in the S. American Tern, given from a posture resembling an aerial Oblique.

The fish-carrying bird during fish-flights, (and this species certainly has plenty of them), utters a "Kaa kaa kaa kaa ...." call which is very similar, possibly identical, with the call I heard during scooping on the ground.

Such facts are beginning to make me change my mind about the relationship between the Inca Tern and the Sterna terns (sensu lato). They may be fairly close after all. I wonder if the "Kree-aar" note is homologous with the Rasp of the Inca Tern ?? (Both notes are certainly given as a reaction to a predator or potential predator on the ground. And the "Kree-aar" note of the Common Tern, on the ground, is certainly given from a semi-O, semi-V, posture like that from which the Rasp is given). And I wonder if the "Kaa kaa kaa kaa ...." form of Glide is homologous with Chit ?? (The postures during scooping are not very different, in fact are very similar, to the ● and ⬬ postures during Chit. The rhythm of the call in both cases is a high intensity rhythm. And it should not be forgotten that the call of the fish-carrying ♂ Inca Tern on the ground is also Chit of a sort. And I also think that when mates "scoop" together, in a dispute with a third bird, they sometimes tend to redirect their scooping toward one another — rather like the redirected Chit of Inca Tern mates). All this is certainly very suggestive.

One respect in which the Chit of the Inca Tern differs very decidedly from the "Glide" of the Sterna terns, however, is in its relationship to the "Alarm Call" (I must add, in case I forgot to earlier, that the "Alarm" nature of the few "muttered" Chit notes utterred by Inca Terns flying up from a potential predator was particularly clear at Jacopillo, where many Inca Tern pairs were nesting scattered in the landing barges). All the Sterna terns seem to have those "Kik-tik" syllables as Alarm Notes — something which the Inca Terns seemed to lack completely — in that particular form at least.

January 3 & 5, 1956,
Punta Grande and Porvenir

Notes on the aerial L.C. performance, which I have seen repeatedly in the birds flying above the bunkhouse at Punta Grande and the birds flying along the coast near Porvenir. The "HO" phase is usually (always?) short, (and not always accompanied by the HO posture — apparently), while the "O" phase is often very long (6–9 syllables). Concur in that the aerial O posture is much less extreme than that of the Herring Gull. Sometimes almost horizontal. Also, sometimes at least, the belly looks particularly plump in the aerial O

aerial O

This posture looks long-winged in the air. The appearance to ~~shift to~~ length of the arm — not that of the hand & primaries

Noticed about 3 juvenal Kelp Gulls feeding with the Dolphin Gulls by the centolla factory. Just feeding, most of the time; but they occasionally gave T notes (usual large Larus "Kleer" type, quite high pitched & "pure" in sound), usually with slight trace of T movement, from feeding posture, or alerted posture, or even H (more or less). This did not seem to be FB. Not directed toward adult Kelp Gulls. Never repeated as FB T so often is, certainly not accompanied by any FB pecking movements toward side of bird toward whom the display was directed. These single T notes, in fact, were very reminiscent of the T's of Scoresby's Gulls. I think they must have been hostile reactions, provoked by the close approach of other birds, other Kelp Gulls and Scoresby's Gulls. This is of some comparative interest

Must again stress how polysyllabic is the L.C. performance on the ground. Frequently the O contains up to 10 notes — sometimes more. It is certainly my impression — although nothing more, that this is more polysyllabic more often than the L.C.'s of any other species I have studied

Two M notes (bill opening very widely, and closing again between notes) from extreme, moderately agg. ♂, in obvious hostile dispute (This is rather un-

the other M's I have seen, which have been given from the "usual" larine M postures).

Must add that I have heard a few 5-syllable Al-C's, by flying birds, but they are still very much rarer than the 4-syllable bird. Jurisic

January 6, 1956, Pronunciation Bay

Both yesterday and today I have heard a call, in the little group by the Centralla factory, that I had not heard, or had not noticed before. A "Juk" or "Juk tuck" or "tuck tuck tuck", a few, only moderately sharp, notes — not very sharp. Occurs when the birds are moving along, in a rather tight, jostling mass, when a new mass of centralla debris has apparently appeared, rather suddenly, in the "disposal" stream from the factory. This call could be either a modified, probably low-intensity, version of the "Al-C", or a low-intensity version of the L-C. I am inclined to think the former. Still, it is quite distinct — insofar as the sound goes.

I have seen a bird do a pronounced "G", over its shoulder, during retreat, after being attacked. Although the "G" pattern of this species is probably individualized, it is usually very conspicuous because of the bright cinnamon-vermilion color of the bill and the whole inside of the mouth, (lightest, least bright perhaps, at the corners of the gape).

This morning I noticed quite an unusual number of unusually extreme V's (unusually extreme in these circumstances — probably only low-to-moderate intensity in reality) after attack. Carpal joints quite definitely out. Some of these V's were quite "aggressive" in appearance, either approaching the "aux" V in angle of bill ←, although the bird was never as "flattened" as their in front, as during "real" aux V's. There is one problem involved here. The birds who do V after attack appear to be more highly motivated, or more "stressed", than those who T in the same circumstances. Is this really so? If so, what does it imply about the general arrangement of low-intensity, "near distance", (and the T is certainly a

near-distance pattern – often at least)? I don't think that I can decide this on my present evidence.

A few more descriptive notes. This species has a pronounced speculum when flying, i.e. a relatively very broad white band along tips of secondaries. Also a white "band" along tips of all but the most distal primaries — (actually a series of white spots on most of these). The species does not, in spite of its relatively small eye, appear relatively large headed. It doesn't look like a particularly aerial form.

124

Heard another complete ground L.C. Obviously HD-D-T.

This T'ing of the adult Kerguelen's Gulls in hostile situations is remarkably similar to the behavior of juvenile gulls of various species, (it is remarkable, as noted above, how the juvenile Kelp Gulls, in the same group, use the T exactly like the Kerguelen's Gulls). Does this mean that the frequent hostile T'ing of Kerguelen's Gull is a primitive or a neotenic character??? Good question.

Note about the juv. LCN given by juvs and/or immatures, (there seems to be only one "young" plumage in the group — dark hood, brown on wings, dull legs, bill like young Belcher's Gulls). It is very difficult to tell exactly when & how this occurs, on the ground, as it is very brief and always occurs when the birds are bunched together and very active feeding. Certainly coordinated with little flurries of actual attacks & fighting in the group. Certainly sometimes given by young birds after being attacked, etc., of course, associated with some actual retreat or flinching). Probably, (almost certainly), by some young birds, at least occasionally, just before attack. In any case, it is quite obviously a hostile pattern and higher intensity than the T patterns.

I can confirm the fact that the T pattern is the one given by birds on ground, both young and adults, toward birds flying overhead. (But only birds flying close overhead — they don't react, in these circumstances, to birds flying high).

Still not a trace of a Landing Call!!

sicurlii, Jan. 6, 1956, III.

I have again, several times, heard adults give LCN note (sometimes not even "muffled") with T movement. Once, in fact, I heard an adult (nuptial plumage) give 2 LCN's with one T.

Although some T notes are apparently given without T movements, (when the birds are particularly busy feeding), and some T movements are given without audible sound, both variations are relatively very rare.

Some T's occur without visible opening of bill, others with visible but slight opening & closing. The note sounds the same in both cases.

The birds, on the whole, seem to be even less active since I returned from Gente Grande than they were before I left. And the group has diminished. There is certainly no sign that birds are drifting in from a breeding colony as the breeding season slowly draws to an end. I think that I must have missed the breeding season completely.

manilipennis

January 6, 1956,
Porvenir Bay

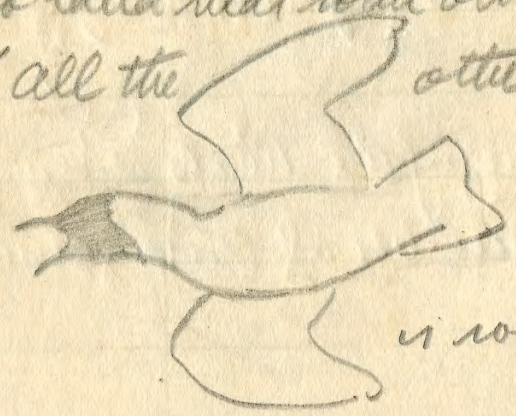
More aerial stuff

Have seen several case of short, moderately steep, swoops with the long LCN's. Flying swoops followed by silent soars, either gliding or flying. Usually provoked by me. Sometimes directed at me, but usually "redirected in vacuo".

Yesterday I noticed an interesting performance of a bird being dive bombed at, repeatedly, by a American Gull. Flew back & forth in a relatively limited area, in an extreme erratic flight, (almost reminiscent of immature Bonaparte's Gulls). This erratic flight incorporated a number of short, steep, swoops (flying) and soars (flying). The whole performance was silent — except that all the swoops were accompanied by 1, 2, or 3 of the long LCN's.

maculipennis, Jan 6, 1956, II.

Have seen a bird utter repeated long LCN's, (all on one pitch – definitely not the usual Landing Call), as it came gliding in, wings half-folded, to land near some other birds of the same species. In extreme aerial O posture (All the



other extreme aerial O's, and long aerial LCN's, have been accompanied by beating wings. Thus, this incident would suggest that the presence or absence of wing movements is solely dependent upon the aerodynamics involved).

Have seen a ♂, on mudflats, display with one ♀, walk over to a second ♀, display with her, then walk back to the first ♀, and go through another display with her. All these displays comprised mutual O → F → V & HF → V. This was very reminiscent of the early pairing behavior of the B.h.G, as we saw it near Frankton There, before the occupation of the colony area. Must be the famous "autumn recrudescence" in this case.

January 8, 1956,
Punta Arenas.

General note about the birds found in the Magellanic Region.

On the mainland, in Punta Arenas harbour, both Kelp Gulls and Patagonian B.h.G's have been common all the time. A few shags around both before I left for the island and after I came back.

On the island, from Calleta Josefina to Santa, the Kelp Gulls were equally common and the Patagonian B.h.G's even commoner than they were on the mainland (although still not as common as the Kelp Gulls in most places). Shags were somewhat more abundant than on the mainland. There were also 2 other species on the island which I have not seen on the mainland. S. American Terns and Dolphin Gulls. S. American Terns were common on cranberry and had colonies scattered all along the beaches. Dolphin

Gulls were much rarer (certainly by far the rarest of all the land), but there were little groups (5-30 birds) here and there along the coast, (usually near Centolla factories), and stray birds or pairs might be seen flying along the coast almost anywhere.

The only visible change I have seen in any of the birds during my two weeks + here is a slight increase in the number of Patagonian B-h.G's moulting out of nuptial plumage.

January 19, 1956,
Cartagena

A note about the gulls I have seen around the Lago el Peral where I have been watching Ruddy Ducks.

A number of Franklin's Gulls have come to the lake from time to time, to bathe, occasionally resting & sleeping on poles in the water for considerable lengths of time. Both immatures & adults. At least 2 adult Patagonian B.h.G's have done the same thing, (one in complete nuptial plumage, one in almost complete winter plumage)

Large numbers (10 or 12) Kelp Gulls have come to the lake from time to time, just to bathe apparently. All ages. There are even more on the nearby beaches.

There are also quite a lot of Grey Gulls on the beaches. Mostly adults in winter plumage and/or immatures.

There are always quite a number of terns flying & fishing off-shore, quite close to land. Presumably <u>hirundinacea</u>